VIA Embedded

user manual

EITX-3000

Em-ITX Form Factor SBC

101-11112009-0910

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Regulatory Compliance

FCC-A Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his personal expense.

Notice 1

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2

Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

Tested To Comply
With FCC Standards
FOR HOME OR OFFICE USE

Battery Recycling and Disposal

Only use the appropriate battery specified for this product.
Do not re-use, recharge, or reheat an old battery.
Do not attempt to force open the battery.
Do not discard used batteries with regular trash.
Discard used batteries according to local regulations.

Safety Precautions

Do's

- Always read the safety instructions carefully.
- Keep this User's Manual for future reference.
- All cautions and warnings on the equipment should be noted.
- Keep this equipment away from humidity.
- Lay this equipment on a reliable flat surface before setting it up.
- Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.
- Place the power cord in such a way that people cannot step on it.
- Always unplug the power cord before inserting any add-on card or module.
- If any of the following situations arises, get the equipment checked by authorized service personnel:
    - The power cord or plug is damaged.
    - Liquid has penetrated into the equipment.
    - The equipment has been exposed to moisture.
    - The equipment has not worked well or you cannot get it work according to User's Manual.
    - The equipment has dropped and damaged.
    - The equipment has obvious sign of breakage.

Don'ts

- Do not leave this equipment in an environment unconditioned or in a storage temperature above 60°C (140°F). The equipment may be damaged.
- Never pour any liquid into the opening. Liquid can cause damage or electrical shock.
- Do not place anything over the power cord.
- Do not cover the ventilation holes. The openings on the enclosure protect the equipment from overheating

EITX-3000 Series Model

Part Number	Description
EITX-3000-1N13A1	VIA Nano 1.3GHz CPU based Fanless Embedded ITX board
EITX-3000-2N13A1	VIA Nano 1.3GHz CPU based Fanless Embedded ITX board with full cable kit
EITX-3000-1N10A1	VIA Nano 1.0GHz CPU based Fanless Embedded ITX board
EITX-3000-2N10A1	VIA Nano 1.0GHz CPU based Fanless Embedded ITX board with full cable kit

Packing Lists

For EITX-3000-1N13A1 and EITX-3000-1N10A1

- ☐ 1 x EITX-3000 SBC
- ☐ 1 x Software driver and utility CD
- ☐ 1 x Mini-jumper pack
- ☐ 1 x Screw pack of 7 pieces of Nickel-Plated Round Head M3*14mm screw
- ☐ 1 x Screw pack of 10 pieces of Hex screw (For 4 COM and VGA ports)
- ☐ 1 x Power cable, 2-pole Phoenix plug to DC-Jack
- ☐ 1 x SATA data cable
- ☐ 1 x SATA power cable

For EITX-3000-2N13A1 and EITX-3000-2N10A1

- ☐ 1 x EITX-3000 SBC
- ☐ 1 x Software driver and utility CD
- ☐ 1 x Mini-jumper pack
- ☐ 1 x Screw pack of 7 pieces of Nickel-Plated Round Head M3*14mm screw
- ☐ 1 x Screw pack of 10 pieces of Hex screw (For 4 COM and VGA ports)
- ☐ 1 x Power cable, 2-pole Phoenix plug to DC-Jack
- ☐ 2 x SATA data cable
- ☐ 2 x SATA power cable
- ☐ 1 x Dual USB cable
- ☐ 1 x Dual connector Cable for one USB mini-DIN connector and a 1x6-pin header for connecting with VIA EMIO-1530 Wireless LAN
- ☐ 1 x Audio Cable
- ☐ 1 x Digital I/O Cable
- ☐ 1 x Thermal Sensor Cable
- ☐ 1 x LPT Cable

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Product Overview

The VIA EITX-3000 is a high performance single board computer (SBC) with low power requirements based on the Embedded ITX (Em-ITX) form factor. Its low power requirements are made possible by its usage of energy efficient VIA CPUs (either VIA Nano™ or Eden™ ULV).

The EITX-3000 is designed for ultra-thin embedded applications and can withstand temperatures ranging from -10° up to 70°C. The powerful VIA Nano processor and VIA VX800 media system processor are placed on the bottom side of the board, enabling an efficient space-saving design that easily accommodates quiet and passive cooling thermal solutions.

The EITX-3000 includes an onboard DC-to-DC converter that supports both AT and ATX power modes. The power converter can support a wide range of power input voltage from DC 7V to DC 30V and can be configured through an onboard switch.

With generous support for multiple display options, the EITX-3000 is ideally suited for high-end multimedia applications including POS, kiosks, ATM, HMI, factory automation, POI, and digital signage. The dual I/O coastline design of the EITX-3000 provides ample space for multiple ports such as two LVDS ports, one VGA port, two Gigabit Ethernet ports, two USB 2.0 ports, two RS-232 COM ports, and two RS-232/422/485 configurable COM ports.

KEY FEATURES

- Onboard VIA Nano ULV processor (1MB L2 Cache)
- Em-ITX (Embedded ITX) form factor with 17cm (W) x 12 cm (L)
- Dual-side multiple I/O connector-coastlines
- Onboard Em-IO expansion bus socket
- Integrated VIA Chrome9 HC3, DC9 3D/2D graphics with MPEG-2/4 and WMV9 video decoding acceleration
- Onboard two of single channel LVDS display ports
- Onboard two Gigabit Ethernets
- Onboard two RS-232 and two RS-232/422-485, setup through BIOS
- Onboard six USB ports
- Fan-less and Ultra Low power consumption

SPECIFICATIONS

Processor Core Logic System

CPU
- VIA Nano Ultra Low Voltage Processor, compact 21 mm x 21 mm NanoBGA2 package:
  - Nano 1.3 GHz (for Model of EITX-3000-1N13A1 and EITX-3000-2N13A1)
  - Nano 1.0 GHz (for Model of EITX-3000-1N10A1 and EITX-3000-2N10A1)

System Chipset
- VIA VX800 Unified Digital Media IGP chipset
- Supports 800 MHz Front Side Bus

BIOS
- Award BIOS
- 8Mbit SPI Flash BIOS
- Supports Plug & Play, APM 1.2

System Power Management
- Times Power On
- ACPI Supported

Battery
- Lithium 3V/48mAh

System Memory

Technology
- One 200-pin SODIMM Socket support DDR2 533/667 SDRAM

Maximum Capacity
- Support memory size up to 2 GB

Graphic

Controller
- Integrated VIA Chrome9 HC3 DX9 3D/2D graphics engine with MPEG-2/4 WMV9 video decoding acceleration built-in VIA VX800 Unified Digital Media IGP chipset

Display Memory
- Optimized Unified Memory Architecture (UMA), supports up to 256 MB frame buffer using system memory

CRT Interface
- Onboard one VGA connector
- Pixel resolution support up 1920 x 1200(VGA)

LVDS Interface
- Support two of 24-bit single-channel LVDS interface connectors as LVDS1/PANEL and LVDS2
- Up to 1280 x 1024 panel resolution (Single Channel LVDS)
- Built-in Inverter control signals into the DB-26 connectors
- Onboard 5V/3.3V LCD power switch (default at 3.3V)

Dual Independent Display
- Support LVDS1 + LVDS2 at same resolutions, same pixel depths, and same refresh rates
- Support CRT + LVDS2 at same resolutions, same pixel depths, and same refresh rates

Gigabit Ethernet

Controller
- Onboard two VIA VT6130 Gigabit Ethernet controllers

Interface
- Support two RJ45 connectors
- Supports Wake On LAN (WOL)
- Support Preboot Execution Environment (PXE)

Audio

Controller
- VIA VT1708B High Definition Audio Codec

Interface
- Support Line-in, Line-out, Mic-in connectors

USB 2.0

Onboard Six USB ports
- Two USB ports by a pair of mini-DIN connector
- Four USB ports by a pin headers with support of individual VCC power

Serial Ports

Controller
- Onboard Fintek F81865 LPC I/O controller

Interface
- Support 4 COM ports
  - Two RS-232/422/485 by two DB-9 connectors as COM 1 and COM 2, configurable via BIOS setup
  - Two RS-232 by two DB-9 connectors of COM 3 and 4
- Support RS-485 AutoFlow Control functions of COM1 and COM2

Parallel Port

Printer Port
- One PS/2 compatible bi-directional parallel port by a 2x13-pin header onboard

DIO

Digital I/O
- One 2x6-pin header- array to support 8-bit Digital IO
- Support 5V/12V power source

Storage Interface

Serial ATA
- Onboard two SATA II ports, Maximum data transfer rate up to 300MB/s
- Only Support 2.5-inch of SATA Hard Disk (no support to 3.5" SATA HDD)

CompactFlash
- Onboard one socket support type I/II CompactFlash disk

Hardware Monitoring

Temperature Sensor
- Built-in one Thermal Sensor by a 1x3-pin header onboard

System Indicator

Power Status LED
- One green color LED

HDD Activity LED
- One red color LED

Watchdog Timer

Output
- System reset

Interval
- Programmable 1~255 sec.

System Expansion

Onboard one 160-pin Em-IO Bus Expansion Interface socket, integrated the following bus interface signals of:
- One PCIe x8 (8-Lane PCIe)
- Two PCIe x1 (1-lane PCIe)
- USB 2.0
- SMBus 2.0
- ACPI 3.0
- DVP (Digital Video Port interface signals from VIA system chipset)
- VCC Power Signals of 5V, 5VSB, 3.3V, 3.3VSB and 12V

Onboard I/O connectors

Front I/O coastline
- One HDD & PWR LED
- Two RS-232/422/485 COM port connectors as COM 1 and COM2
- Two RS-232 COM port connectors as COM3 and COM4
- Two USB mini-DIN connectors
- One 2-pole of Phoenix power input connector
- One ATX power On/Off switch

Rear I/O coastline
- One VGA connector
- Two DB-26 connectors for dual 24-bit single channel LVDS interface as LVDS1 and LVDS2
- Two RJ45 connectors for dual Gigabit Ethernet connection

Onboard I/O pin headers

Pin-headers
- One 2x15-pin box headers for LVDS1 (co-lay with LVDS1)
- Two 1x3-pin headers for LCD Power 3.3v/5V selection
- One 2x5-pin headers; plus a 2x6-pin by 2-array, with individual VCC power support for 4 x USB 2.0 ports
- One 2x13-pin headers or LPT port
- One 2x5-pin headers for Line-out, Line-in and Mic-in
- One 2x5-pin headers for thermal sensor
- Two SATA data connectors, only support connection with 2.5" HDD
- Two SATA power connectors, only support 5V power
- One 1x3-pin header for selecting the AT or ATX mode

Onboard DC to DC Power Supply

Power Consumption
- Typical 18.5W, Maximum 25.8W

Input Voltage
- Built-in onboard DC-to-DC converter
- Accept wide range of Power Input of DC 7V ~ 36V
- Typical Power Input
  - 7 V_{DC} @ 2.64 A
  - 12 V_{DC} @ 1.54 A
  - 16 V_{DC} @ 1.15 A
  - 19 V_{DC} @ 0.97 A
  - 24 V_{DC} @ 0.77 A
  - 36 V_{DC} @ 0.51 A
- Support AT and ATX mode

Power Input Connector
- One 2-pole Phoenix connector

AT/ATX
- Onboard AT/ATX switch by a 1x3-pin headers

Fuse Rating
- 7A / 125V

Physical Characteristics

Form Factor
- Em-ITX

Board Dimension (W x L)
- 17 cm (W) x 12 cm (L)

Weight
- 0.98Kg (net weight of board plus heatsink only)

Heatsink

Construction
- Aluminum Alloy mixed with Copper Heatsink

Dimension (W x H x D)
- 232.6 mm x 53 mm x 124.8 mm

Environment Specifications

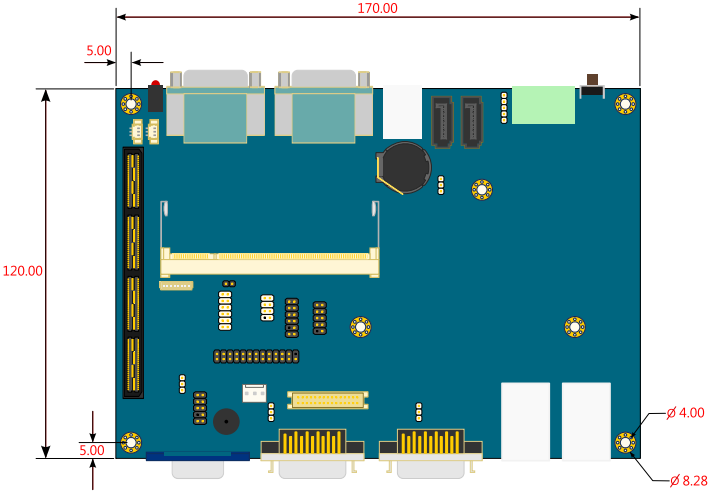
Operating Temperature
- Nano 1.3GHz version (Part Number: EITX-3000-1N13A1 and EITX-3000-2N13A1) is -10 to 65° C
- Nano 1.0GHz version (Part Number: EITX-3000-1N10A1 and EITX-3000-2N10A1) is -10 to 70° C

Operating Humidity
- 10% ~ 90%, relative humidity, non-condensing

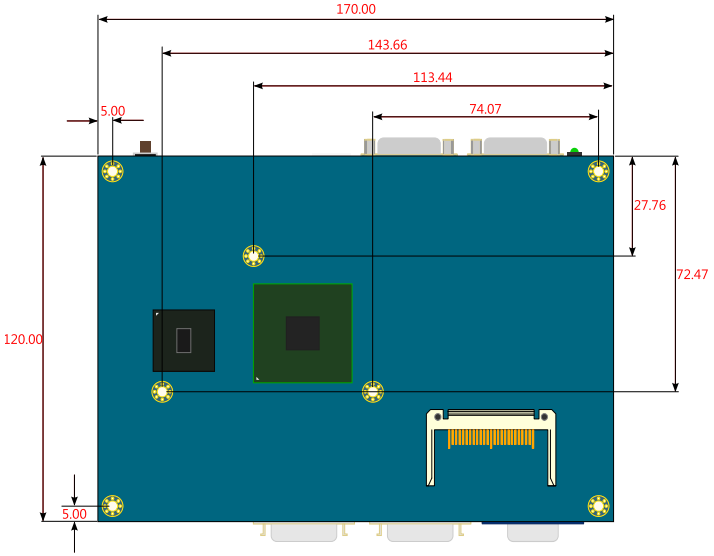
Vibration loading during operation
- 5Grms, IEC 68-2-64, random, 5~500Hz, 1 Oct./min, 1hr/axis

EITX-3000 DIMENSIONS

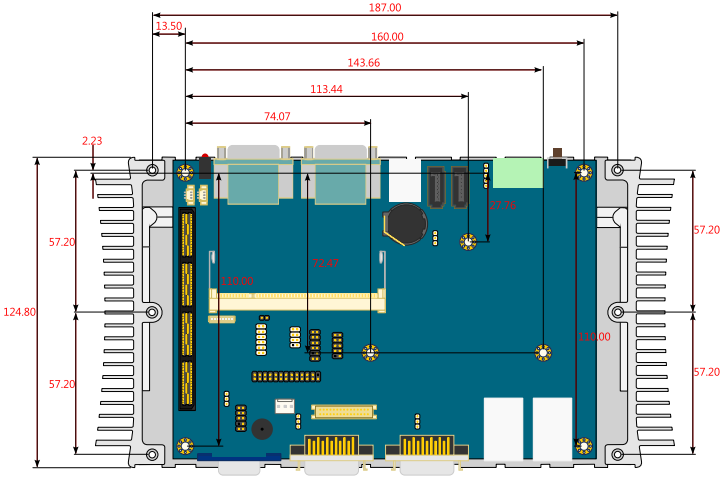
Top Layer



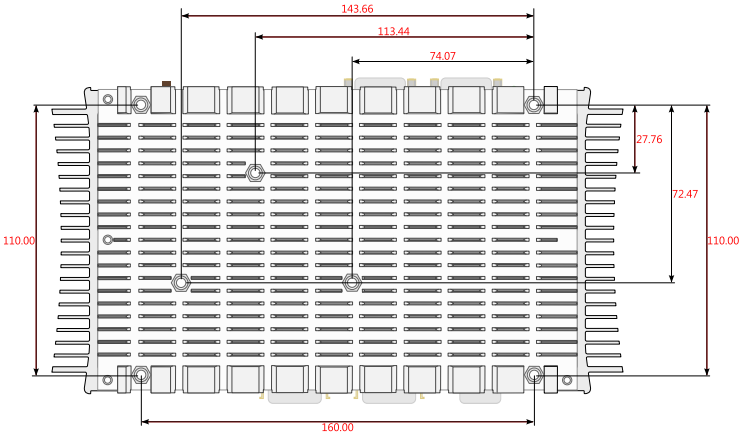
Bottom Layer



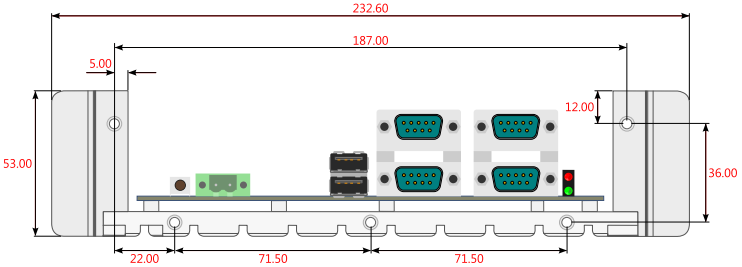
Top Layer with heatsink



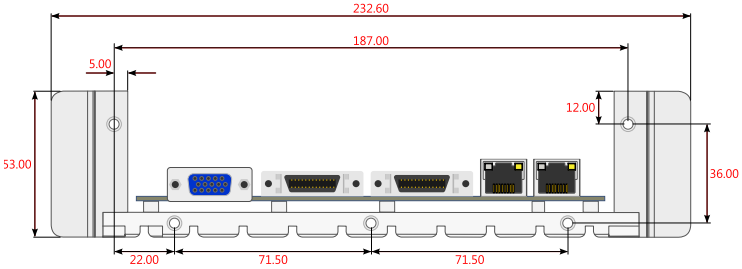
Bottom Layer with heatsink



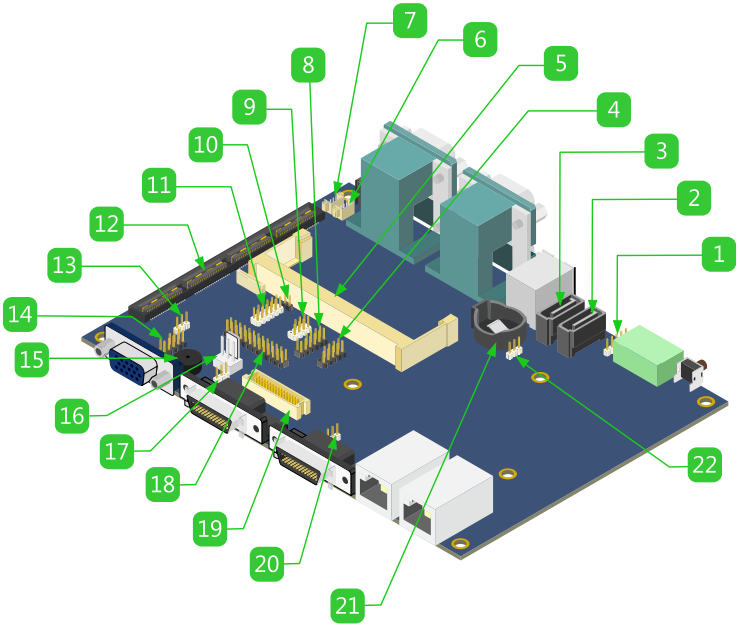
Front I/O with heatsink



Rear I/O with heatsink

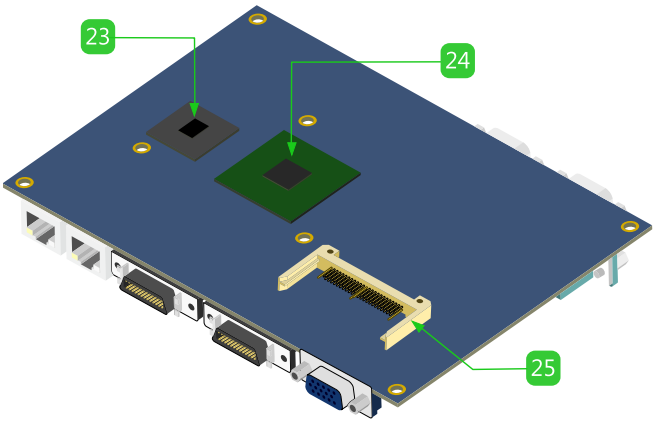


EITX-3000 LAYOUT (TOP)



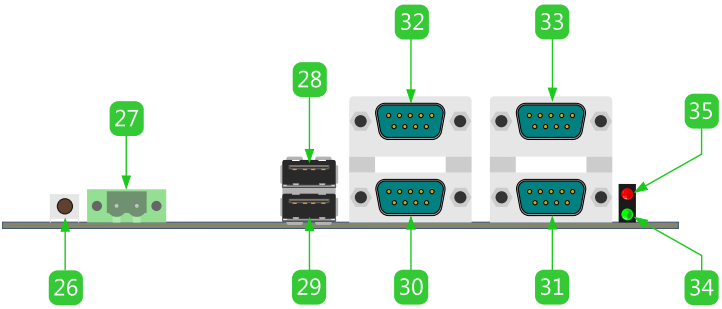
Item	Description	Item	Description
1	AT/ATX power mode select	12	Em-IO connector
2	SATA1 connector	13	Thermal sensor connector
3	SATA2 connector	14	Front Audio pin connector
4	USB 4/5 pin connector	15	Buzzer
5	SODIMM memory slot	16	System Fan Power pin connector
6	SATA-Power 2 connector	17	PVDD1 LCD power select pin jumper
7	SATA-Power 1 connector	18	LPT pin connector
8	USB 2/3 pin connector	19	Onboard LVDS Panel connector
9	JSPI pin connector	20	PVDD2 LCD power select pin jumper
10	System Reset pin jumper	21	Battery socket
11	Digital I/O pin connector	22	Clear CMOS pin jumper

EITX-3000 LAYOUT (BOTTOM)



Symbol	Description
23	VIA Nano CPU
24	VIA VX800 system chipset
25	Compact Flash socket

FRONT I/O LAYOUT



Symbol	Description
26	Power button (Power On/Off)
27	Power input connector
28	USB 2.0 port 1
29	USB 2.0 port 2
30	COM 2 port (RS-232/422/485)
31	COM 1 port (RS-232/422/485)
32	COM 4 port (RS-232)
33	COM 3 port (RS-232)
34	Power LED indicator
35	HDD LED indicator

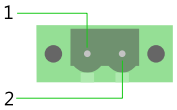
Power Button

The board comes with a Power On/Off button, that Support dual function of Soft Power -On/Off (Instant off or Delay 4 Second), and Suspend.

Power Input Connector

The board comes with a Phoenix connector that carries 7~36 VDC external power input.

Pin	Signal
1	GND
2	+7V ~ 36V DC

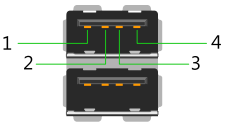


USB Port Connector: USB Port 1 and 2

The EITX-3000 can support up to six USB-interface connectors. By default it provides two USB interface by one double-deck of mini-DIN connectors located on the front I/O coastline as USB_0 and USB_1, and an additional four USB-interface connectors can be supported through adding two pieces of the Dual-USB Cable to connect with onboard pin headers location of "USB_2/3" and "USB_4/5". These USB-interface connectors give complete Plug & Play and hot swap capability for up to 127 external devices. The USB interface complies with USB UHCI, Rev. 2.0 compliance.

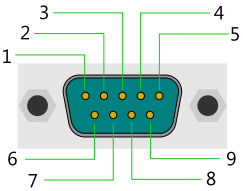
The USB-interface connector is used for connecting any device that conforms to the USB interface. Many recent digital devices conform to this standard. The USB interface supports Plug and Play, which enables you to connect or disconnect a device whenever you want, without turning off the computer

Pin	Signal
1	VCC
2	USB_P0-
3	USB_P0+
4	GND



COM Port Connectors

The EITX-3000 board provides four D-Sub 9-pin connectors as COM 1, COM 2, COM 3 and COM 4 serial communications.



COM 1 and COM 2 ports

The EITX-3000 provides two D-Sub 9-pin connectors as COM 1 and COM 2 for RS-232/422/485 serial communications.

	RS-232	RS-422	RS-485
Pin	Signal	Signal	Signal
1	DCD	Tx-	DATA-
2	RxD	Tx+	DATA+
3	TxD	Rx+	NC
4	DTR	Rx-	NC
5	GND	GND	GND
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC

The default setting of COM 1 and COM 2 is RS-232, both COM 1 and COM 2 can be configured to operate in RS-232, RS-422 or RS-485 mode by adjusting the BIOS setup items of "COM1 RS-232/422/485 Type" and "COM2 RS-232/422/485 Type" in "Super I/O COM Ports (UARTS)" of "Super I/O Device" of "Integrated Peripherals" section at Award BIOS setup.

COM 3 and COM 4 ports

The EITX-3000 provides two D-Sub 9-pin connectors, which offers standard RS-232 serial communications interface port as COM 3 and COM 4. Please refer to the table list below for the pin assignments of COM 3 and COM 4.

Pin	Signal
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI

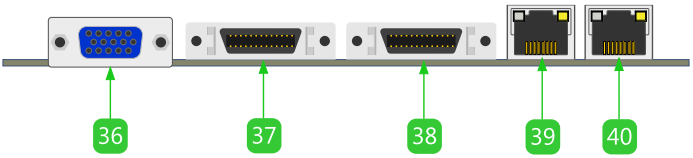
Note:
NC represents "No Connection"

LED Indicators

There are two LEDs on the EITX-3000 front I/O coastline for indicating system status:

- PWR LED is for power status and Flash in green color; and
- HDD LED is for hard disk and compact flash disk status, which Flash in red color.

REAR I/O LAYOUT

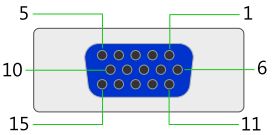


Symbol	Description
36	VGA port
37	LVDS port 1
38	LVDS port 2
39	RJ-45 Gigabit Ethernet LAN port 2
40	RJ-45 Gigabit Ethernet LAN port 1

VGA Connector

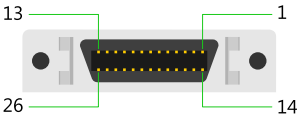
The EITX-3000 provides a high resolution VGA interface on the rear I/O coastline by a D-sub 15-pin connector to support a VGA CRT monitor. It supports resolution up to 1920 x 1200. The pin assignments for the VGA display are listed below.

Pin	Signal
1	Red
2	Green
3	Blue
4	NC
5	GND
6	GND
7	GND
8	GND
9	NC
10	GND
11	NC
12	NC
13	H-SYNC
14	V-SYNC
15	NC



LVDS Connectors: LVDS1 and LVDS2

The EITX-3000 supports two 24-bit single channel LVDS interface connectors by two D-Sub 26-pin connectors as "LVDS1" and "LVDS2" on rear I/O coastline, both connectors also carry the inverter control signals, and can direct connect to two of LVDS LCD Display via external cables.



Built in LCD Backlight On/Off and Brightness control signals

Both LVDS1 and LVDS2 connectors all build in the control signals of "BLON" signal, "BRIGHTNESS_CTL" as well as +12V, +5V and Ground Pin signals that allow developers/applicants to connect these signals to LCD Inverter to implement the LCD backlight On/Off control and brightness control.

- Provides "BLON" signal that inverter Module require for controlling the Backlight On/Off.
- Provides the 12V, 5V as the Inverter Power Source.
- The "BRIGHTNESS_CTL" signal pin could be connected to LCD's Inverter that allow applicant to implement brightness adjustment through customer's software utility.

LVDS1

Pin	Signal	Pin	Signal
1	+LCLK1	14	GND
2	-LCLK1	15	+LD1C3
3	GND	16	-LD1C3
4	+LD1C2	17	GND
5	-LD1C2	18	GND
6	GND	19	+LD1C1
7	+LD1C0	20	-LD1C1
8	-LD1C0	21	GND
9	SPCLK1	22	SPD1
10	PVDD1	23	PVDD1
11	IVDD1_12V	24	IVDD1_12V
12	BLON1	25	BRIGHTNESS_CTL1
13	IVDD1_5V	26	IVDD1_5V

LVDS2

Pin	Signal	Pin	Signal
1	+LCLK2	14	GND
2	-LCLK2	15	+LD2C3
3	GND	16	-LD2C3
4	+LD2C2	17	GND
5	-LD2C2	18	GND
6	GND	19	+LD2C1
7	+LD2C0	20	-LD2C1
8	-LD2C0	21	GND
9	SPCLK2	22	SPD2
10	PVDD2	23	PVDD2
11	IVDD2_12V	24	IVDD2_12V
12	BLON2	25	BRIGHTNESS_CTL2
13	IVDD2_5V	26	IVDD2_5V

Onboard "PANEL" connector share same signals of LVDS1

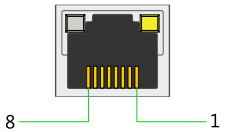
The EITX-3000 also supports an onboard 24-bit single channel LVDS interface by a high density of 2x15-pin wafer box connector as "PANEL" connector which shares the same pin assignments from LVDS1. Please refer to chapter 2 in "LVDS Panel connector" to find out the details of pin assignment of onboard "PANEL" connector.

Onboard LCD signal power 3.3V/5V switch

The system also provide two jumper headers of "PVDD1_SEL" and "PVDD2_SEL" onboard for selecting the LCD signal power of 3.3V or 5V for LVDS1 and LVDS2, please refer to chapter 3 for the jumper table of PVDD1 and PVDD2. The default setting of PVDD1 and PVDD2 is 3.3V

LAN ports: Gigabit Ethernet Port 1 and 2

The EITX-3000 is equipped with two high performance of 1 Lane of PCI-Express bus interface of VIA VT6130 Gigabit Ethernet controllers, which supports two Gigabit Ethernet ports, both are fully compliant with IEEE 802.3 (10BASE-T), 802.3u (100BASE-TX), and 802.3ab (1000BASE-T) standards. This two Gigabit Ethernet ports provides two standard RJ-45 jack connectors as LAN1 and LAN2. The pin assignments of LAN1 and LAN2 connectors are listed below.



LAN1		LAN2	
Pin	**Signal**	**Pin**	**Signal**
1	LAN1_TD0+	1	LAN2_TD0+
2	LAN1_TD0-	2	LAN2_TD0-
3	LAN1_TD1+	3	LAN2_TD1+
4	LAN1_TD1-	4	LAN2_TD1-
5	LAN1_TD2+	5	LAN2_TD2+
6	LAN1_TD2-	6	LAN2_TD3-
7	LAN1_TD3+	7	LAN2_TD3+
8	LAN1_TD3-	8	LAN2_TD3-

Both LAN1 and LAN2 of RJ-45 connectors equip with 2 individual LED indicators located on the front side to show its Active/Link status and Speed status.

LAN LED Status

	Link LED (Left LED on RJ-45 connector)	**Active LED** (Right LED on RJ-45 connector)
Active	The LED always On in different color, and it depends on different of LAN connection speed	Flash in Orange color
Link	The LED always On in different color, and it depends on different of LAN connection speed	LED is off
Speed_10Mbit	The LED is always On in Orange color	Flash in Orange color
Speed_100 Mbit	The LED is always On in Green color	Flash in Orange color
Speed_1000 Mbit	The LED is always On in Red color	Flash in Orange color

2

Onboard Connectors & Slots

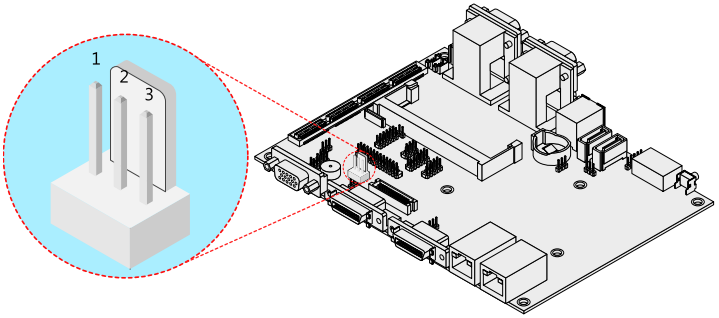
This chapter provides you with information about hardware installation procedures. It is recommended to use a grounded wrist strap before handling computer components. Electrostatic discharge (ESD) can damage some components.

TOPSIDE CONNECTORS AND SLOTS

System Fan: SYS Fan

The SYS_FAN runs on +12V and maintain system cooling. When connecting the wire to the SYS FAN connector, always be aware that the red wire (positive wire) should be connected to the +12V. The black wire (ground wire) and should always be connected to GND.

Pin	Signal
1	NC
2	+12V-
3	GND

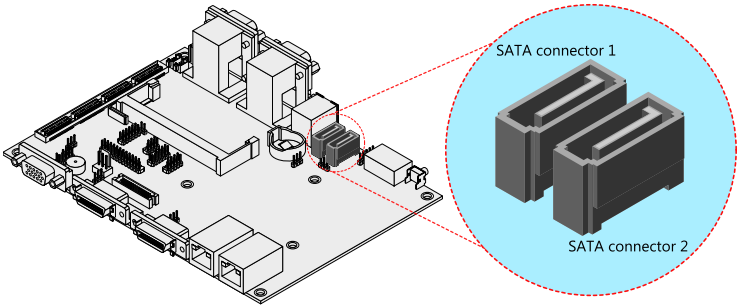


SATA Connectors : SATA1 and SATA2

The EITX-3000 board supports two Serial ATA ports via two onboard connectors (SATA1 and SATA2). Data transfer rates up to 300MB/s are possible, enabling fast data file transfer with independent DMA operation. .

In connecting the SATA power via onboard S-Power 1 and S-Power 2 connectors, SATA1 and SATA2 can only support 2.5-inch Hard Disk Drives, and won't be able to support 3.5-inch Hard Disk Drive because 3.5-inch Hard Disk Drive requires a 12V power source.

Pin	Signal
1	GND
2	A+ (Transmit+)
3	A- (Transmit-)
4	GND
5	B- (Receive+)
6	B+ (Receive-)
7	GND

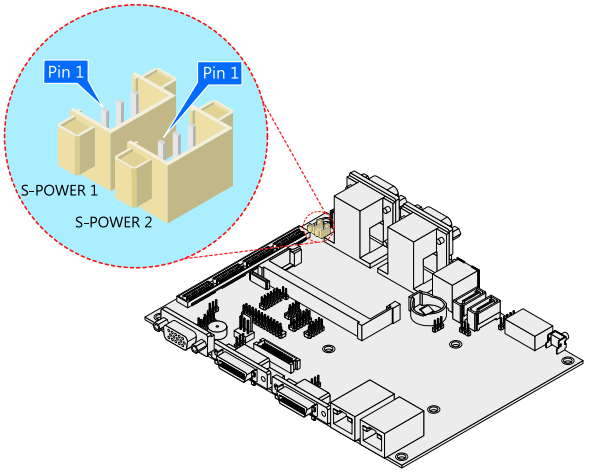


SATA-Power Connectors: S-Power 1 and S-Power 2

The mainboard supports two 3-pin SATA power connectors with 5V power sources: S-Power 1 and S-Power 2.

When connecting the SATA power cables via onboard S-Power 1 and S-Power 2 connectors, make sure that the power plug is inserted in the proper orientation and pins are properly aligned.

Pin	Signal
1	GND
2	+5V Power
3	+5V Power

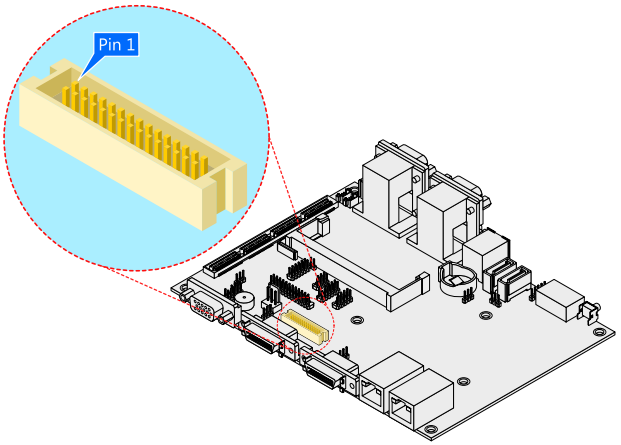


LVDS LCD Panel connector: PANEL

Besides the two 24-bit single channel LVDS ports (LVDS1 and LVDS2) on the rear I/O panel, the EITX-3000 also supports an onboard 24-bit single channel LVDS interface through a high density 30-pin (2x15-pin) wafer box connector that shares the same pin assignments from LVDS1.

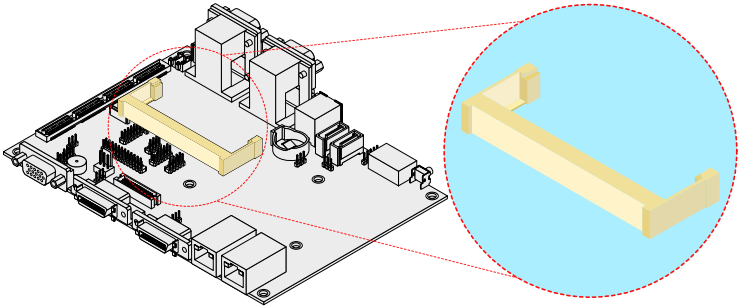
A detailed pin assignment of the 30-pin (2x15-pin) wafer box connector is shown below.

Pin	Signal	Pin	Signal
1	IVDD1_5V	16	+LD1C1
2	PVDD1	17	GND
3	IVDD1_5V	18	GND
4	PVDD1	19	SPCLK1
5	GND	20	-LD1C2
6	GND	21	SPD1
7	IVDD1_12V	22	+LD1C2
8	-LD1C0	23	GND
9	IVDD1_12V	24	GND
10	+LD1C0	25	-LCLK1
11	GND	26	-LD1C3
12	GND	27	+LCLK1
13	BLON1	28	+LD1C3
14	-LD1C1	29	GND
15	BRIGHTNESS_CTL1	30	GND



SODIMM SDRAM Memory slot

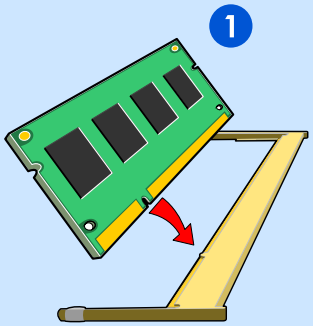
The EITX-3000 provides one 200-pin SODIMM SDRAM slot for DDR2 533/667 MHz memory modules. It can support memory sizes up to 2 GB.



Installing the memory

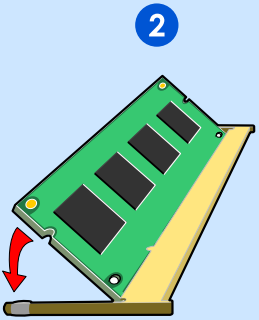
Step 1

Locate the SODIMM slot in the mainboard and align the notch on the SODIMM with the memory slot.



Step 2

Insert the SODIMM module at a 45 degree angle. Then push the SODIMM down until it snaps into the locking mechanism.



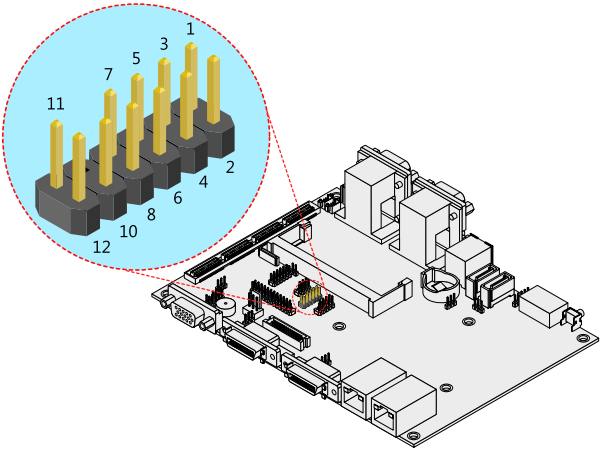
USB connectors

The EITX-3000 can support up to six USB ports. In addition to the two mini-DIN USB2.0 ports (USB_0/1) on the front I/O panel, the EITX-3000 also provides one 12-pin (2x6-pin) onboard pin headers for USB_2/3, and one 10-pin (2x5-pin) onboard pin headers for USB_4/5.

USB_2/3 pin connector

The USB_2/3 interface can only be accessed through pin 1 ~ 10 of the 12-pin (2x6-pin) USB pin-header. The adapter cable is required in order to use a standard USB connector. The adapter cable has a 10-pin (2x5-pin) female connector on one end and two USB ports on the other end. The other 2 pins of the 12-pin (2x6-pin) onboard pin-header (pin 11 and pin 12) are reserved for connecting to the VIA 802.11b.g Wireless LAN USB module EMIO-1530. Pin 12 is a GPO signal that can be controlled to turn off the Wireless LAN USB module.

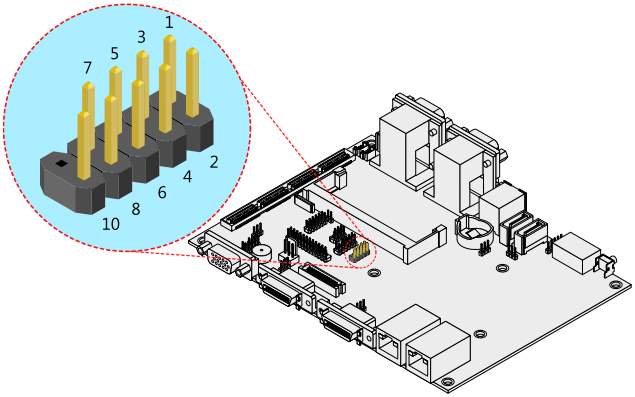
Pin	Signal	Pin	Signal
1	VUSB2	2	VUSB2
3	USBD_T2-	4	USBD_T3-
5	USBD_T2+	6	USBD_T3+
7	GND	8	GND
9	KEY	10	NC
11	GND	12	GPO0



USB_4/5 pin connector

The USB_4/5 interface can be accessed through the 10-pin USB pin-header. It also requires an adapter cable in order to use two standard USB connectors.

Pin	Signal	Pin	Signal
1	VUSB4	2	VUSB4
3	USBD_T4-	4	USBD_T5-
5	USBD_T4+	6	USBD_T5+
7	GND	8	GND
9	KEY	10	NC

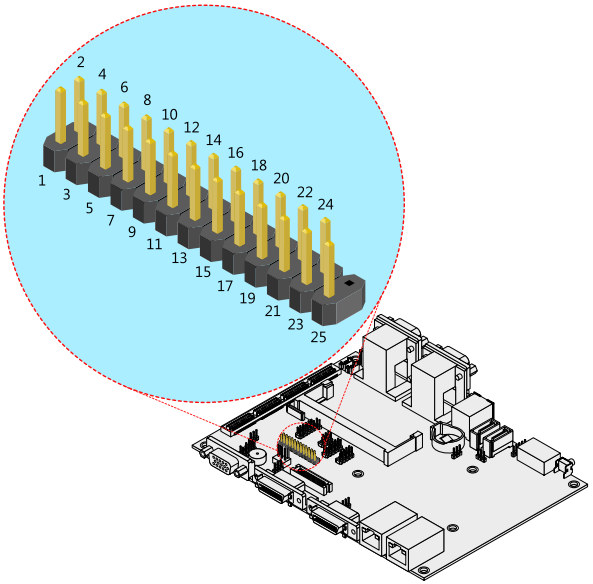


LPT pin connector

The LPT port is used to connect the board to a printer. The board includes a multi-mode (EPP+ECP/ECP/EPP/SPP) parallel port accessed via an onboard 26-pin flat-cable connector. An adapter cable is required in order to use a traditional DB-25 connector. The adapter cable has a 26-pin (2x13-pin) female connector on one end, and a DB-25 connector on the other end.

The parallel port is designated as LPT. The parallel port interrupt channel is designated to be IRQ7. Changing the settings between ECP/EPP DMA channels can be done in the BIOS Setup menu.

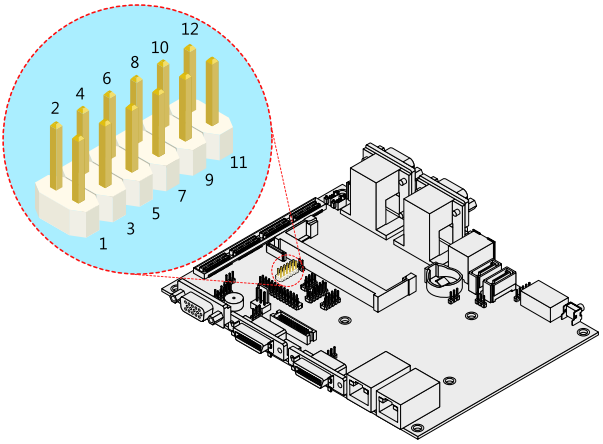
Pin	Signal	Pin	Signal
1	STROBE	2	AUTOFD
3	D0	4	ERR
5	D1	6	INIT
7	D2	8	SLCTINI
9	D3	10	GND
11	D4	12	GND
13	D5	14	GND
15	D6	16	GND
17	D7	18	GND
19	ACK	20	GND
21	BUSY	22	GND
23	PE	24	GND
25	SLCT	26	KEY



Digital I/O pin connector: DIO

The board supports 8-bit Digital I/O (GPIO) through the DIO pin-header. The 8 digital inputs and outputs can be programmed to read or control devices, with input or output defined. The default setting is 4 bits input and 4 bits output.

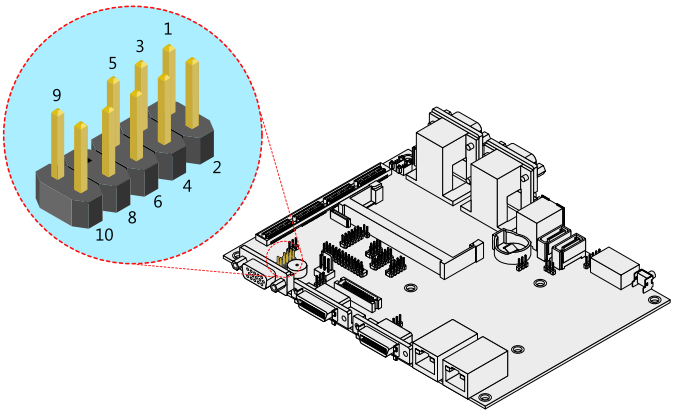
Pin	Signal	Pin	Signal
1	5V_DIO	2	12V_DIO
3	GPO_50	4	GP1_54
5	GPO_51	6	GP1_55
7	GPO_52	8	GP1_56
9	GPO_53	10	GP1_57
11	GND	12	GND



Front Panel Audio pin connector: F_Audio

The F_Audio interface enables access to the VIA High Definition Audio signals through a 10-pin (2x5-pin) onboard pin-header. This interface allows convenient connection and control of audio devices.

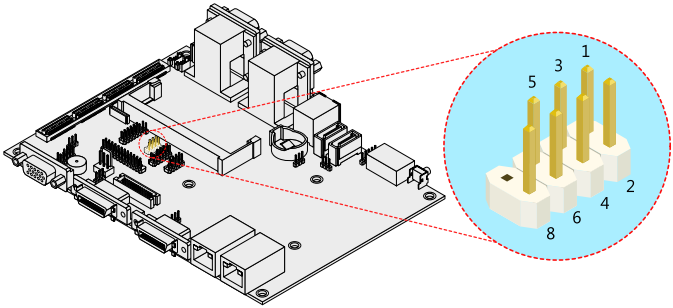
Pin	Signal	Pin	Signal
1	LINE_OUT_R	2	LINE_OUT_L
3	LINE_IN_R	4	LINE_IN_L
5	MIC1_RE_R	6	LINE_RE_L
7	KEY	8	NC
9	AGND	10	AGND



SPI pin connector: JSPI

This SPI (Serial Peripheral Interface) pin-header is used to connect to the SPI BIOS programming fixture.

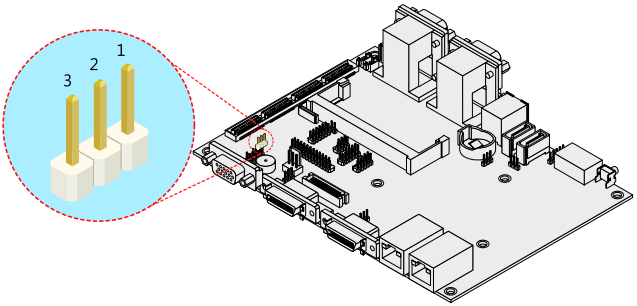
Pin	Signal	Pin	Signal
1	SPI_VCC	2	GND
3	SPI_SS0	4	SPI_CLK
5	SPI_DI	6	SPI_DO
7	KEY	8	RST_SW



System Thermal Sensor pin connector: SEN

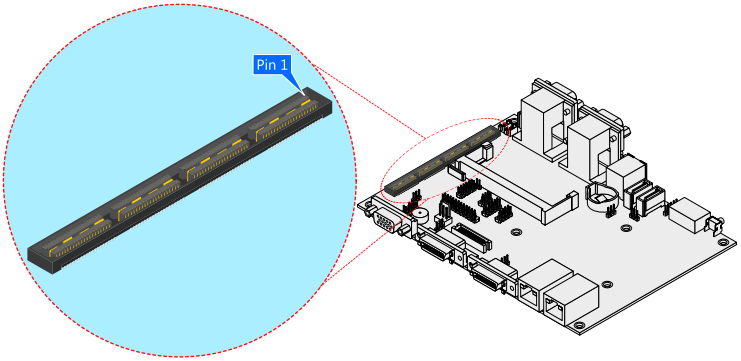
The board supports a 3-pin (1x3-pin) header, that allows the connection of a thermal sensor cable for detecting the system's internal air temperature. The temperature reading can be seen in the BIOS Setup menu by navigating to the selection item of "System Temp." of PC Health Status menu.

Pin	Signal
1	D2+_SYS
2	D2+_SYS
3	D2-_GND



Em-IO Expansion Connector

The Em-IO interface connector enables the EITX-3000 to connect to Em-IO expansion modules.



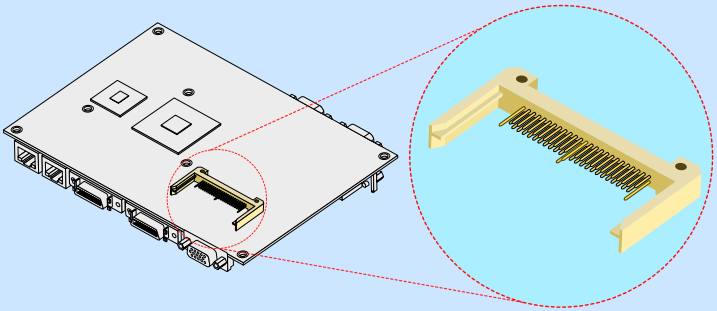
Note:
For more details on the Em-IO connectors, please refer to Appendix B.

BOTTOM SIDE CONNECTORS AND SLOTS

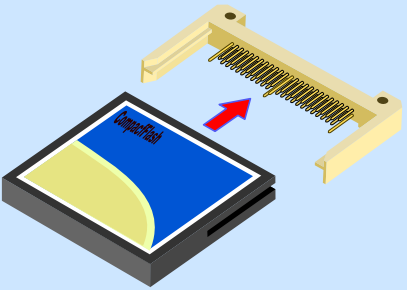
Compact Flash slot: CF

Installing CF card:

Step 1
Locate the CF card slot at the bottom of the mainboard.

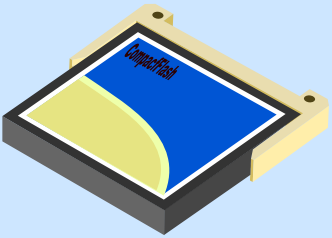


Step 2
Align the CF card with the CF card slot.



Step 3

Then gently insert the CF card and push it until it is totally inserted.



3

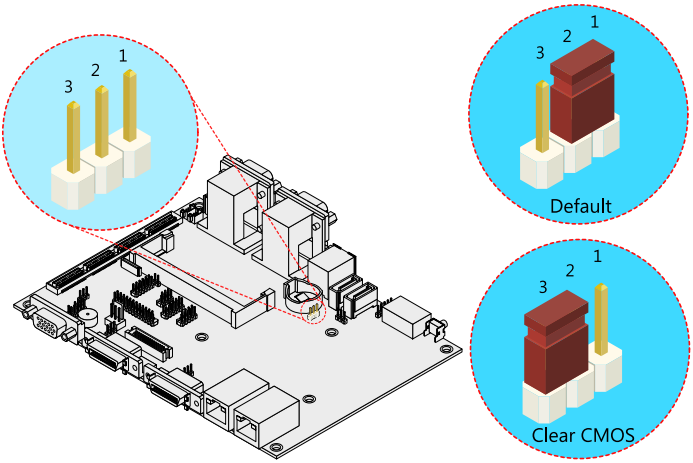
Onboard Jumpers

The EITX-3000 mainboard provides jumpers for setting some mainboard functions. This section will explain how to change the settings of the mainboard functions using the jumpers.

CLEAR_CMOS: CLEAR CMOS JUMPER

The onboard CMOS RAM stores system configuration data and has an onboard battery power supply. To reset the CMOS settings, set the jumper on pin 2 and 3 while the system is off. Return the jumper to pin 1 and 2 afterwards. Setting the jumper while the system is on will damage the mainboard.

Setting	1	2	3
Normal Operation (default)	ON	ON	OFF
Clear CMOS setting	OFF	ON	ON

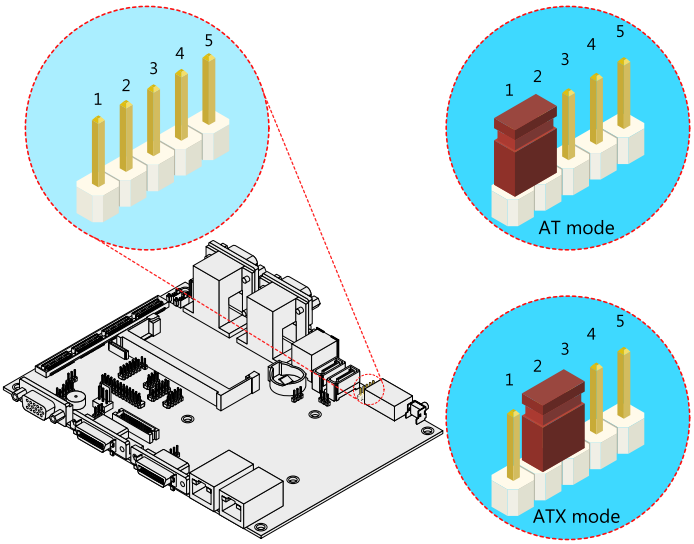


Caution:
Except when clearing the RTC RAM, never remove the CLEAR_CMOS jumper cap from the default position. Removing the cap will cause system boot failure. Avoid clearing the CMOS while the system is on; it will damage the mainboard.

AT/ATX Power mode Select

The EITX-3000 supports two kinds of power modes: ATX (default) and AT. The ATX mode requires a standby power connection and a power supply on signal to turn on the main power supply. The AT mode does not require a standby power connection but needs to be connected to ground to boot up properly. The power mode can be set by changing the jumper position on the 5-pin AT/ATX pin header. Default setup support ATX mode.

Setting	1	2	3	4	5
AT mode	ON	ON	OFF	OFF	OFF
ATX mode (default)	OFF	ON	ON	OFF	OFF
Reserved pin for external ATX power On/Off control	OFF	OFF	OFF	-	-

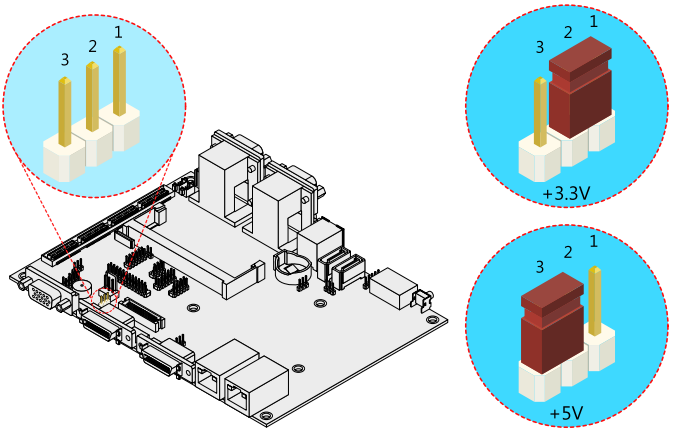


Note:
Pin 4 and pin 5 are reserved for External ATX Power On/Off control via cable. The developers can connect the cable to the pin 4 and pin 5 of the 5-pin AT/ATX pin header to manipulate the Power On/Off control.

PVDD1_SEL: LCD POWER JUMPER

The EITX-3000 Em-ITX SBC provides an onboard jumper named "PVDD1_SEL" for setting the LCD signal power to either 5V or 3.3V for LVDS1 and PANEL interface connectors. When connecting the LVDS LCD Panel display to LVDS1 or PANEL, the setting of PVDD1_SEL must match the power requirements of the connected LVDS Panel display. The default setting of PVDD1_SEL is 3.3V

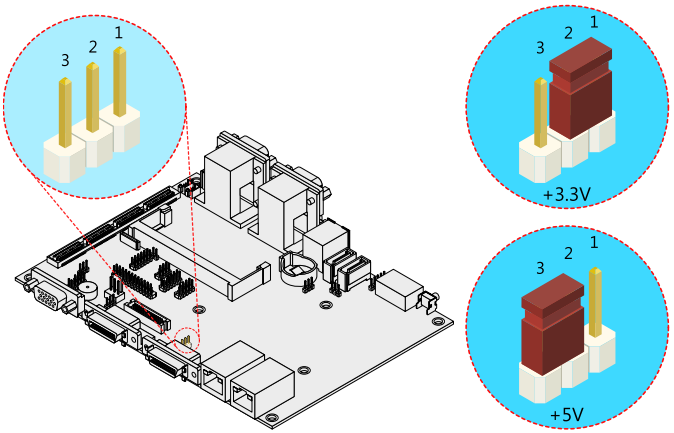
Setting	1	2	3
+3.3V (default)	ON	ON	OFF
+5V	OFF	ON	ON



PVDD2_SEL: LCD POWER JUMPER

The EITX-3000 Em-ITX SBC provides an onboard jumper named "PVDD2_SEL" for setting the LCD signal power to either 5V or 3.3V . When connecting the LVDS LCD Panel display to LVDS2, the setting of PVDD2_SEL must match the power requirements of the connected LVDS Panel display. The default setting of PVDD2_SEL is 3.3V

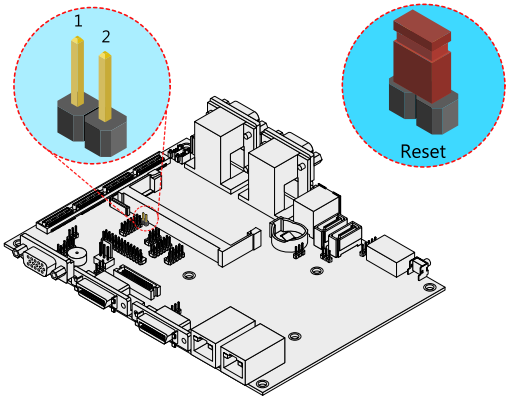
Setting	1	2	3
+3.3V (default)	ON	ON	OFF
+5V	OFF	ON	ON



RST: System Reset Jumper

To restart the hardware, momentarily close the jumper of the 2-pin reset pin-header.

Setting	1	2
Open (default)	OFF	OFF
Reset	ON	ON



4

BIOS Setup

This chapter gives a detailed explanation of the BIOS setup functions.

Entering the BIOS Setup Menu

Power on the computer and press <Delete> during the beginning of the boot sequence to enter the BIOS setup menu. If you missed the BIOS setup entry point, restart the system and try again.

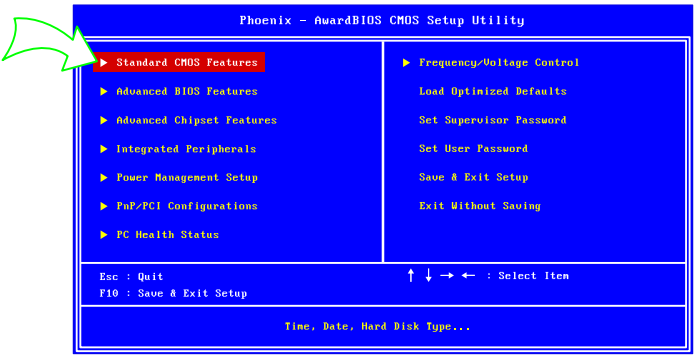
Control Keys

Keys	Description
Up	Move to the previous item
Down	Move to the next item
Left	Move to the item in the left side
Right	Move to the item in the right side
Enter	Select the item
Esc	Jumps to the Exit menu or returns to the main menu from a submenu
Page up	Increase the numeric value or make changes
Page down	Decrease the numeric value or make changes
+ (number pad)	Increase the numeric value or make changes
- (number pad)	Decrease the numeric value or make changes
F1	General help, only for Status Page Setup Menu and Option Page Setup Menu
F5	Restore the previous CMOS value from CMOS, only for Option Page Setup Menu
F6	Load the default CMOS value from Fail-Safe default table, only for Option Page Setup Menu
F7	Load Optimized defaults
F10	Save all the CMOS changes and exit

NAVIGATING THE BIOS MENUS

The main menu displays all the BIOS setup categories. Use the <Left>/<Right> and <Up>/<Down> arrow keys to select any item or sub-menu. Descriptions of the selected/highlighted category are displayed at the bottom of the screen.

The small triangular arrowhead symbol next to a field indicates that a sub-menu is available (see figure below). Press <Enter> to display the sub-menu. To exit the sub-menu, press <Esc>.

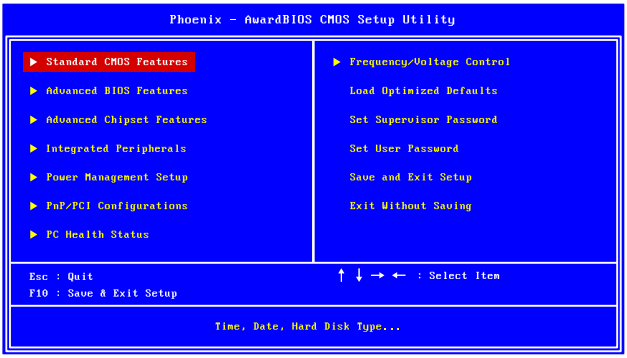


GETTING HELP

The BIOS setup program provides a "General Help" screen. You can display this screen from any menu/sub-menu by pressing <F1>. The help screen displays the keys for using and navigating the BIOS setup. Press <Esc> to exit the help screen.

Main Menu

The Main Menu contains thirteen setup functions and two exit choices. Use arrow keys to select the items and press <Enter> to accept or enter Sub-menu.



Standard CMOS Features

Use this menu to set basic system configurations.

Advanced BIOS Features

Use this menu to set the advanced features available on your system.

Advanced Chipset Features

Use this menu to set chipset specific features and optimize system performance.

Integrated Peripherals

Use this menu to set onboard peripherals features.

Power Management Setup

Use this menu to set onboard power management functions.

PnP/PCI Configurations

Use this menu to set the PnP and PCI configurations.

PC Health Status
This menu shows the PC health status.

Frequency/Voltage Control
Use this menu to set the system frequency and voltage control.

Load Optimized Defaults
Use this menu option to load BIOS default settings for optimal and high performance system operations.

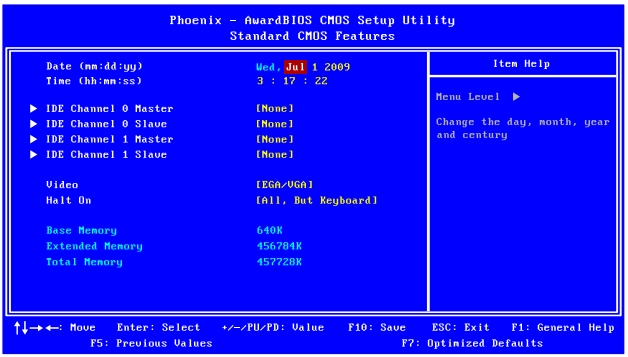
Set Supervisor Password
Use this menu option to set the BIOS supervisor password.

Set User Password
Use this menu option to set the BIOS user password.

Save & Exit Setup
Save BIOS setting changes and exit setup.

Exit Without Saving
Discard all BIOS setting changes and exit setup.

STANDARD CMOS FEATURES


Phoenix - AwardBIOS CMOS Setup Utility
Standard CMOS Features
Date (mm:dd:yy) Wed, Jul 1 2009
Time (hh:mm:ss) 3 : 17 : 22
IDE Channel 0 Master [None]
IDE Channel 0 Slave [None]
IDE Channel 1 Master [None]
IDE Channel 1 Slave [None]
Video [EGA/VGA]
Halt On [All, But Keyboard]
Base Memory 640K
Extended Memory 456704K
Total Memory 457728K
Item Help
Menu Level ▶
Change the day, month, year and century
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F7: Optimized Defaults

Date

The date format is [Day, Month, Date, Year]

Time

The time format is [Hour : Minute : Second]

Video

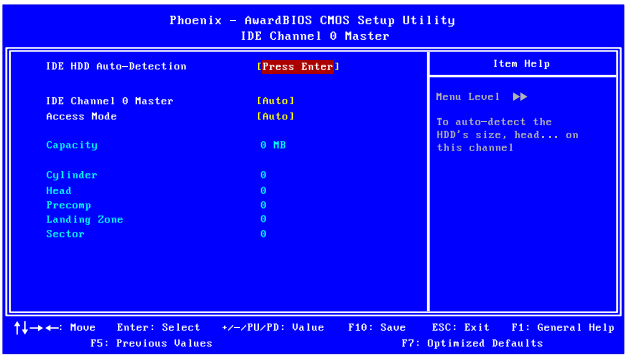
Settings: [EGA/VGA, CGA 40, CGA 80, MONO]

Halt On

Set the system's response to specific boot errors. Below is a table that details the possible settings.

Settings	Description
All Errors	System halts when any error is detected
No Errors	System does not halt for any error
All, But Keyboard	System halts for all non-key errors

IDE CHANNELS

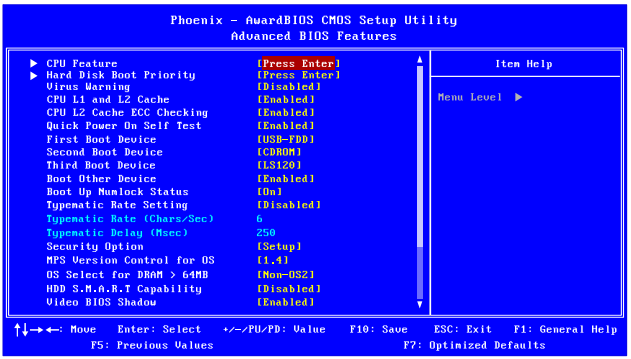


The specifications of your drive must match with the drive table. The hard disk will not work properly if you enter incorrect information in this category. Select "Auto" whenever possible. If you select "Manual", make sure the information is from your hard disk vendor or system manufacturer.

Below is a table that details required hard drive information when using the "Manual" mode.

Settings	Description
IDE Channel	The name of this match the name of the menu. Settings: [None, Auto, Manual]
Access Mode	Settings: [CHS, LBA, Large, Auto]
Capacity	Formatted size of the storage device
Cylinder	Number of cylinders
Head	Number of heads
Precomp	Write precompensation
Landing Zone	Cylinder location of the landing zone
Sector	Number of sectors

ADVANCED BIOS FEATURES


Phoenix - AwardBIOS CMOS Setup Utility
Advanced BIOS Features
CPU Feature [Press Enter]
Hard Disk Boot Priority [Press Enter]
Virus Warning [Disabled]
CPU L1 and L2 Cache [Enabled]
CPU L2 Cache ECC Checking [Enabled]
Quick Power On Self Test [Enabled]
First Boot Device [USB-FDD]
Second Boot Device [CDROM]
Third Boot Device [LS120]
Boot Other Device [Enabled]
Boot Up Numlock Status [On]
Typematic Rate Setting [Disabled]
Typematic Rate (Chars/Sec) 6
Typematic Delay (Msec) 250
Security Option [Setup]
MPS Version Control for OS [1.4]
OS Select for DRAM > 64MB [Non-OS2]
HDD S.M.A.R.T Capability [Disabled]
Video BIOS Shadow [Enabled]
Item Help
Menu Level ▶
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F7: Optimized Defaults

Virus Warning

Allows you to choose the VIRUS warning feature for IDE Hard Disk boot sector protection.

Settings	Description
Enabled	Turns on hard disk boot sector virus protection
Disabled	Turns off hard disk boot sector virus protection

Note:
If this function is enabled and someone attempt to write data into this area, BIOS will show a warning message on the screen and alarm beep.

CPU L1 & L2 Cache

Settings	Description
Disabled	Turns off CPU L1 & L2 cache
Enabled	Turns on CPU L1 & L2 cache

CPU L2 Cache ECC Checking

Settings: [Enabled, Disabled]

Quick Power On Self-Test

Shortens Power On Self-Test (POST) cycle to enable shorter boot up time.

Settings	Description
Disabled	Standard Power On Self Test (POST)
Enabled	Shorten Power On Self Test (POST) cycle and boot up time

First/Second/Third Boot Device

Set the boot device sequence as BIOS attempts to load the disk operating system.

Settings	Description
LS120	Boot from LS120
Hard Disk	Boot from the HDD
CDROM	Boot from CDROM
ZIP100	Boot from ZIP100
USB-FDD	Boot from USB Floppy
USB-ZIP	Boot from USB ZIP drive
USB-CDROM	Boot from USB CDROM
Legacy LAN	Boot from network drive
Disabled	Disable the boot device sequence

Boot Other Device

Enables the system to boot from alternate devices if the system fails to boot from the "First/Second/Third Boot Device" lists.

Settings	Description
Disabled	No alternate boot device allowed
Enabled	Enable alternate boot device

Boot Up NumLock Status

Set the NumLock status when the system is powered on.

Settings	Description
Off	Forces keypad to behave as arrow keys
On	Forces keypad to behave as 10-key

Typematic Rate Setting

Enable "Typematic Rate" function.
Settings: [Disabled, Enabled]

Typematic Rate (Chars/Sec)

This item sets the rate (characters/second) at which the system retrieves a signal from a depressed key.
Settings: [6, 8, 10, 12, 15, 20, 24, 30]

Typematic Delay (Msec)

This item sets the delay between, when the key was first pressed and when the system begins to repeat the signal from the depressed key.
Settings: [250, 500, 750, 1000]

Security Option

Selects whether the password is required every time the System boots, or only when you enter Setup.

Settings	Description
Setup	Password prompt appears only when end users try to run BIOS Setup
System	Password prompt appears every time when the computer is powered on and when end users try to run BIOS Setup

MPS Version Control for OS

Settings: [1.1, 1.4]

OS Select for DRAM > 64 MB

Settings: [Non-OS2, OS2]

HDD S.M.A.R.T Capability

Settings: [Disabled, Enabled]

Video BIOS Shadow

Settings: [Disabled, Enabled]

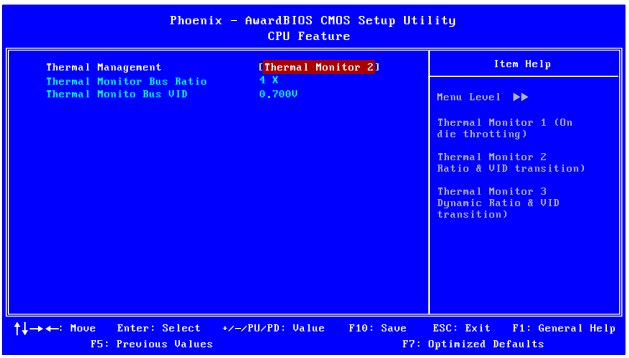
Full Screen Logo Show

Show full screen logo during BIOS boot up process.
Settings: [Disabled, Enabled]

Summary Screen Show

Show summary screen.
Settings: [Disabled, Enabled]

CPU FEATURE



Thermal Management

This item sets CPU's thermal control rule to protect CPU from overheat.

Settings	Description
Thermal Monitor 1	On-die throtting
Thermal Monitor 2	Ratio & VID transition
Thermal Monitor 3	Dynamic Ratio & VID transition
Disabled	Disable the thermal monitor

Thermal Monitor Bus Ratio

This item sets the frequency (bus ratio) of the throttled performance that will be initiated when one on die sensor goes from not hot to hot.

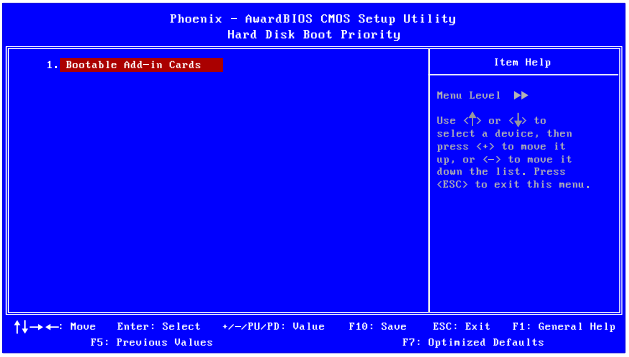
Key in a DEC number.

Settings: [Min = 0, Max = 255]

Thermal Monitor Bus VID

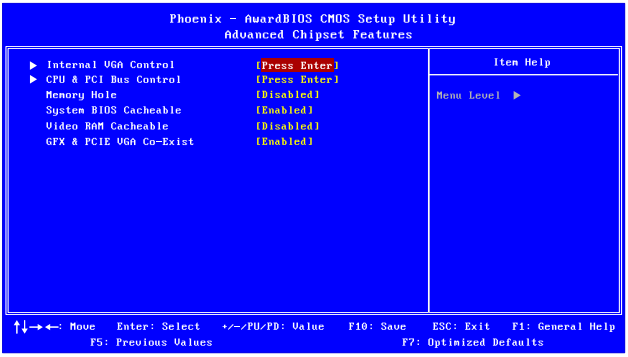
This item sets the voltage of the throttled performance that will be initiated when the on die sensor goes from not hot to hot.
Settings: [0.700V, 0.716V, 0.732V, 0.748V, 0.764V, 0.780V, 0.796V, 0.812V, 0.828V, 0.844V, 0.860V, 0.876V, 0.892V, 0.908V, 0.924V, 0.940V, 0.956V, 0.972V, 0.988V, 1.004V, 1.020V, 1.036V, 1.052V, 1.068V, 1.084V, 1.100V, 1.116V, 1.132V, 1.148V, 1.164V, 1.180V, 1.196V, 1.212V, 1.228V, 1.244V, 1.260V, 1.276V, 1.292V, 1.308V, 1.324V, 1.340V, 1.356V, 1.372V, 1.388V, 1.404V, 1.420V, 1.436V, 1.452V, 1.468V, 1.484V, 1.500V, 1.516V, 1.532V, 1.548V, 1.564V, 1.580V, 1.596V, 1.612V, 1.628V, 1.644V, 1.660V, 1.676V, 1.692V, 1.708]

HARD DISK BOOT PRIORITY


Phoenix - AwardBIOS CMOS Setup Utility
Hard Disk Boot Priority
1. Bootable Add-in Cards
Item Help
Menu Level ▶▶
Use <↑> or <↓> to select a device, then press <+> to move it up, or <-> to move it down the list. Press <ESC> to exit this menu.
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F7: Optimized Defaults

This is for setting the priority of the hard disk boot order when the "Hard Disk" option is selected in the "[First/Second/Third] Boot Device" menu item.

ADVANCED CHIPSET FEATURES


Phoenix - AwardBIOS CMOS Setup Utility
Advanced Chipset Features
Internal VGA Control [Press Enter]
CPU & PCI Bus Control [Press Enter]
Memory Hole [Disabled]
System BIOS Cacheable [Enabled]
Video RAM Cacheable [Disabled]
GFX & PCIE VGA Co-Exist [Enabled]
Item Help
Menu Level ▶
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F7: Optimized Defaults

Caution:
The Advanced Chipset Features menu is used for optimizing the chipset functions. Do not change these settings unless you are familiar with the chipset.

Memory Hole

Settings: [Disabled, 15M – 16M]

System BIOS Cacheable

Settings: [Disabled, Enabled]

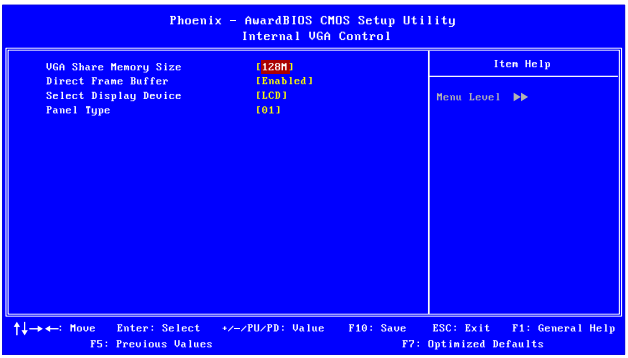
Video RAM Cacheable

Settings: [Disabled, Enabled]

GFX & PCIE VGA Co-Exist

Settings: [Disabled, Enabled]

INTERNAL VGA CONTROL


Phoenix - AwardBIOS CMOS Setup Utility
Internal VGA Control
VGA Share Memory Size [128M]
Direct Frame Buffer [Enabled]
Select Display Device [LCD]
Panel Type [01]
Item Help
Menu Level ▶▶
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F7: Optimized Defaults

VGA Share Memory Size

This setting allows you to select the amount of system memory that is allocated to the integrated graphics processor.
Settings: [Disabled, 64M, 128M, 256M]

Direct Frame Buffer

Settings: [Disabled, Enabled]

Select Display Device

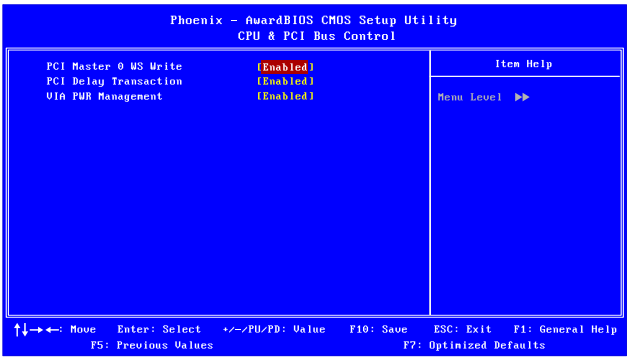
This setting refers to the type of display being used with the system.
Settings: [CRT, LCD, DVI, LCD2, CRT+LCD, CRT+DVI, CRT+LCD2, LCD+LCD2, LCD+DVI]

Panel Type

This setting refers to the native resolution of the display being used with the system.
Settings:

00: 640 x 480	08: 800 x 480
01: 800 x 600	09: 1024 x 600
02: 1024 x 768	0A: 1366 x 768
03: 1280 x 768	0B: 1600 x 1200
04: 1280 x 1024	0C: 1680 x 1050
05: 1400 x 1050	0D: 1920 x 1200
06: 1440 x 900	0E: 640 x 240
07: 1280 x 800	0F: 1024 x 576

CPU & PCI Bus Control


Phoenix - AwardBIOS CMOS Setup Utility
CPU & PCI Bus Control
PCI Master 0 WS Write [Enabled]
PCI Delay Transaction [Enabled]
VIA PWR Management [Enabled]
Item Help
Menu Level ▶▶
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F7: Optimized Defaults

PCI Master 0 WS Write

Settings: [Disabled, Enabled]

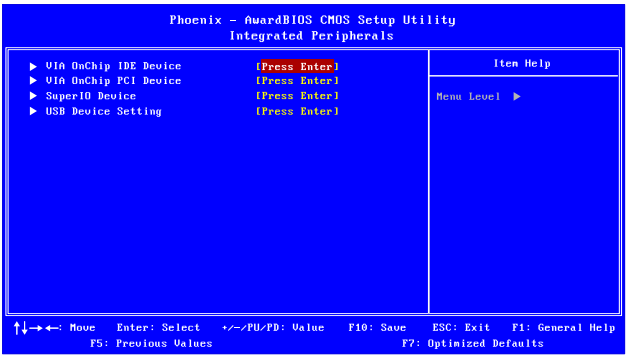
PCI Delay Transaction

Settings: [Disabled, Enabled]

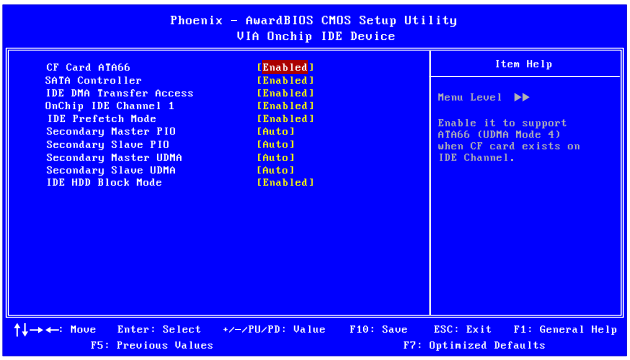
VIA PWR Management

Settings: [Disabled, Enabled]

INTEGRATED PERIPHERALS


Phoenix - AwardBIOS CMOS Setup Utility
Integrated Peripherals
▶ VIA OnChip IDE Device [Press Enter]
▶ VIA OnChip PCI Device [Press Enter]
▶ SuperIO Device [Press Enter]
▶ USB Device Setting [Press Enter]
Item Help
Menu Level ▶
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F7: Optimized Defaults

VIA OnChip IDE Device


Phoenix - AwardBIOS CMOS Setup Utility
VIA Onchip IDE Device
CF Card ATA66 [Enabled]
SATA Controller [Enabled]
IDE DMA Transfer Access [Enabled]
OnChip IDE Channel 1 [Enabled]
IDE Prefetch Mode [Enabled]
Secondary Master PIO [Auto]
Secondary Slave PIO [Auto]
Secondary Master UDMA [Auto]
Secondary Slave UDMA [Auto]
IDE HDD Block Mode [Enabled]
Item Help
Menu Level ▶▶
Enable it to support ATA66 (UDMA Mode 4) when CF card exists on IDE Channel.
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F7: Optimized Defaults

CF Card ATA66

Settings: [Disabled, Enabled]

SATA Controller

Settings: [Disabled, Enabled]

IDE DMA Transfer Access

Settings: [Disabled, Enabled]

OnChip IDE Channel 1

Settings: [Disabled, Enabled]

IDE Prefetch Mode

Settings: [Disabled, Enabled]

Secondary Master PIO

Settings: [Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4]

Secondary Slave PIO

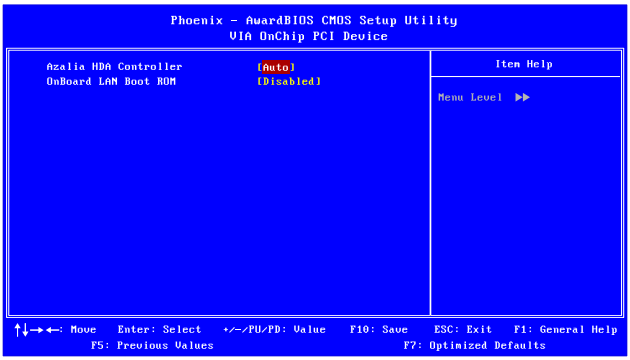
Settings: [Auto, Mode 0, Mode 1, Mode 2, Mode 3, Mode 4]

Secondary Master UDMA
Settings: [Disabled, Auto]

Secondary Slave UDMA
Settings: [Disabled, Auto]

IDE HDD Block Mode
Settings: [Disabled, Enabled]

VIA ONCHIP PCI DEVICE


Phoenix - AwardBIOS CMOS Setup Utility
VIA OnChip PCI Device
Azalia HDA Controller [Auto]
OnBoard LAN Boot ROM [Disabled]
Item Help
Menu Level ▶▶
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F7: Optimized Defaults

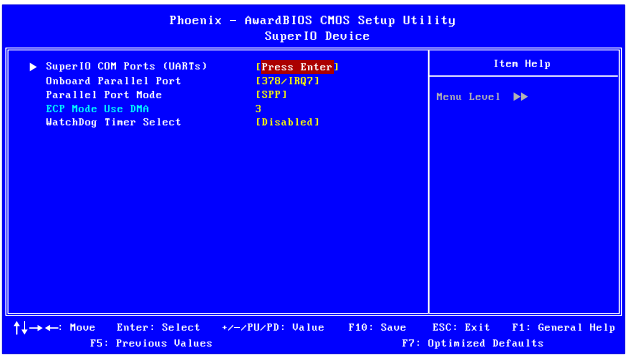
Azalia HDA Controller

Settings: [Disabled, Auto]

OnBoard LAN Boot ROM

Settings: [Enabled, Disabled]

SUPERIO DEVICE


Phoenix - AwardBIOS CMOS Setup Utility
SuperIO Device
SuperIO COM Ports (UARTs) [Press Enter]
Onboard Parallel Port [378/IRQ7]
Parallel Port Mode [SPP]
ECP Mode Use DMA 3
WatchDog Timer Select [Disabled]
Item Help
Menu Level ▶▶
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F7: Optimized Defaults

Onboard Parallel Port

Settings: [Disabled, 378/IRQ7, 278/IRQ5, 3BC/IRQ7]

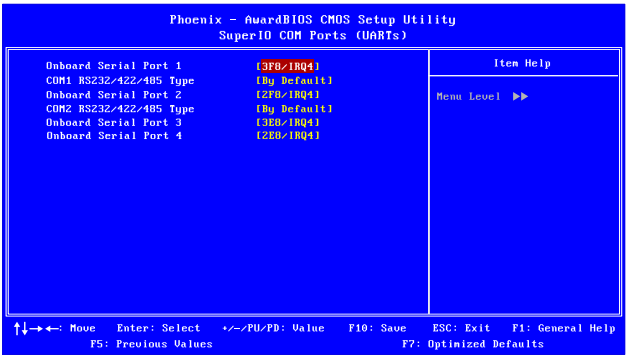
Parallel Port Mode

Settings: [SPP, EPP, ECP, ECP+EPP]

Watch Dog Timer Select

Settings: [Disabled, 10 Sec, 20 Sec, 30 Sec, 40 Sec, 1 Min, 2 Min, 4 Min]

SuperIO COM Ports (UARTs)


Phoenix - AwardBIOS CMOS Setup Utility
SuperIO COM Ports (UARTs)
Onboard Serial Port 1 [3F8/IRQ4]
COM1 RS232/422/485 Type [By Default]
Onboard Serial Port 2 [2F8/IRQ4]
COM2 RS232/422/485 Type [By Default]
Onboard Serial Port 3 [3E8/IRQ4]
Onboard Serial Port 4 [2E8/IRQ4]
Item Help
Menu Level ▶▶
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F7: Optimized Defaults

Onboard Serial Port 1

Settings: [Disabled, 3F8/IRQ4, 2F8/IRQ4, 3E8/IRQ4, 2E8/IRQ4]

COM1 RS232/422/485 Type

Settings: [By Default, RS232, RS422, RS485]

Onboard Serial Port 2

Settings: [Disabled, 3F8/IRQ4, 2F8/IRQ4, 3E8/IRQ4, 2E8/IRQ4]

COM2 RS232/422/485 Type

Settings: [By Default, RS232, RS422, RS485]

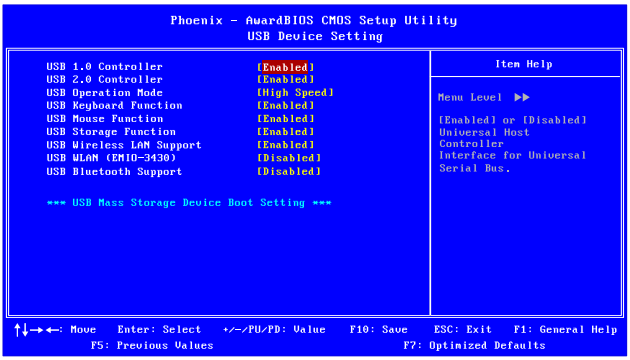
Onboard Serial Port 3

Settings: [Disabled, 3F8/IRQ4, 2F8/IRQ4, 3E8/IRQ4, 2E8/IRQ4]

Onboard Serial Port 4

Settings: [Disabled, 3F8/IRQ4, 2F8/IRQ4, 3E8/IRQ4, 2E8/IRQ4]

USB Device Setting


Phoenix - AwardBIOS CMOS Setup Utility
USB Device Setting
USB 1.0 Controller [Enabled]
USB 2.0 Controller [Enabled]
USB Operation Mode [High Speed]
USB Keyboard Function [Enabled]
USB Mouse Function [Enabled]
USB Storage Function [Enabled]
USB Wireless LAN Support [Enabled]
USB WLAN (EMIO-3430) [Disabled]
USB Bluetooth Support [Disabled]
*** USB Mass Storage Device Boot Setting ***
Item Help
Menu Level ▶▶
[Enabled] or [Disabled] Universal Host Controller Interface for Universal Serial Bus.
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F7: Optimized Defaults

USB 1.0 Controller

Enable or disable Universal Host Controller Interface for Universal Serial Bus.
Settings: [Disabled, Enabled]

USB 2.0 Controller

Enable or disable Enhanced Host Controller Interface for Universal Serial Bus.
Settings: [Disabled, Enabled]

USB Operation Mode

Auto decide USB device operation mode.

Settings	Description
Full/Low Speed	All of USB Device operated on full/low speed mode
High Speed	If USB device was high speed device, then it operated on high speed mode.

USB Keyboard Function

Enable or disable Legacy support of USB Keyboard.
Settings: [Disabled, Enabled]

USB Mouse Function

Enable or disable Legacy support of USB Mouse.
Settings: [Disabled, Enabled]

USB Storage Function

Enable or disable Legacy support of USB Mass Storage.
Settings: [Disabled, Enabled]

USB Wireless LAN Support

Settings: [Disabled, Enabled]

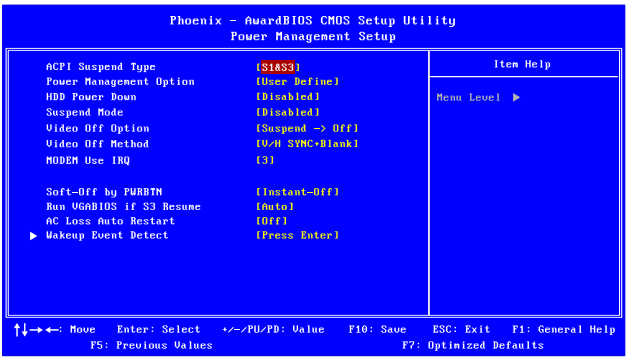
USB WLAN (EMIO-3430)

Settings: [Disabled, Enabled]

USB Bluetooth Support

Settings: [Disabled, Enabled]

POWER MANAGEMENT SETUP


Phoenix - AwardBIOS CMOS Setup Utility
Power Management Setup
ACPI Suspend Type [S1&S3]
Power Management Option [User Define]
HDD Power Down [Disabled]
Suspend Mode [Disabled]
Video Off Option [Suspend -> Off]
Video Off Method [V/H SYNC+Blank]
MODEM Use IRQ [3]
Soft-Off by PWRBTN [Instant-Off]
Run VGABIOS if S3 Resume [Auto]
AC Loss Auto Restart [Off]
Wakeup Event Detect [Press Enter]
Item Help
Menu Level ▶
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F7: Optimized Defaults

ACPI Suspend Type

Settings	Description
S1(POS)	S1/Power On Suspend (POS) is a low power state. In this state, no system context (CPU or chipset) is lost and hardware maintains all system contexts.
S3(STR)	S3/Suspend To RAM (STR) is a power-down state. In this state, power is supplied only to essential components such as main memory and wakeup-capable devices. The system context is saved to main memory, and context is restored from the memory when a "wakeup" event occurs.
S1 & S3	Depends on the OS to select S1 or S3.

Power Management Option

Settings: [User Define, Min Saving, Max Saving]

HDD Power Down

Set the length of time for a period of inactivity before powering down the hard disk.

Settings: [Disable, 1 Min, 2 Min, 3 Min, 4 Min, 5 Min, 6 Min, 7 Min, 8 Min, 9 Min, 10 Min, 11 Min, 12 Min, 13 Min, 14 Min, 15 Min]

Suspend Mode

Settings: [Disabled, 1 Min, 2 Min, 4 Min, 6 Min, 8 Min, 10 Min, 20 Min, 30 Min, 40 Min, 1 Hour]

Video Off Option

Select whether or not to turn off the screen when system enters power saving mode, ACPI OS such as Windows XP will override this option.

Settings	Description
Always On	Screen is always on even when system enters power saving mode
Suspend -> Off	Screen is turned off when system enters power saving mode

Video Off Method

Settings: [Blank Screen, V/H SYNC + Blank, DPMS Support]

MODEM Use IRQ

Settings: [NA, 3, 4, 5, 7, 9, 10, 11]

Soft-Off by PWRBTN

Settings	Description
Delay 4 Sec	System is turned off if power button is pressed for more than four seconds.
Instant-Off	Power button functions as a normal power-on/-off button.

Run VGABIOS if S3 Resume

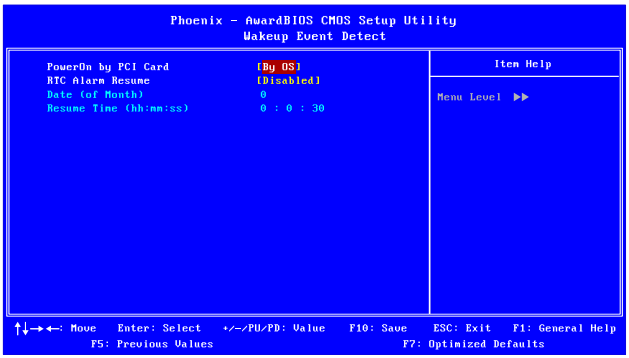
Select whether to run VGA BIOS if resuming from S3 state. This is only necessary for older VGA drivers.
Settings: [Auto, Yes, No]

AC Loss Auto Restart

The field defines how the system will respond after an AC power loss during system operation.

Settings	Description
Off	Keeps the system in an off state until the power button is pressed
On	Restarts the system when the power is back
Former-Sts	Former-Sts

WAKEUP EVENT DETECT


Phoenix - AwardBIOS CMOS Setup Utility
Wakeup Event Detect
PowerOn by PCI Card [By OS]
RTC Alarm Resume [Disabled]
Date (of Month) 0
Resume Time (hh:mm:ss) 0 : 0 : 30
Item Help
Menu Level ▶▶
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F7: Optimized Defaults

PowerOn by PCI Card

Enables activity detected from any PCI card to power up the system or resume from a suspended state. Such PCI cards include LAN, onboard USB ports, etc.
Settings: [By OS, Enabled]

RTC Alarm Resume

Set a scheduled time and/or date to automatically power on the system.
Settings: [Disabled, Enabled]

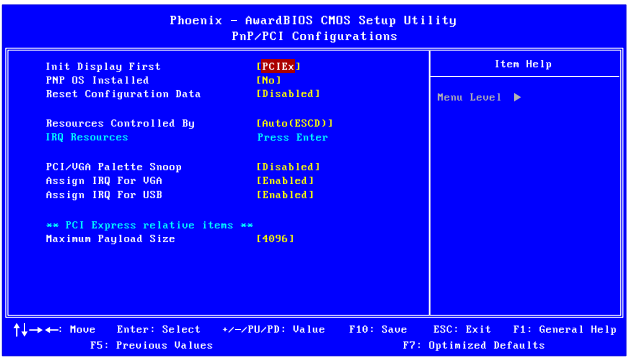
Date (of Month)

This field can only be set if "RTC Alarm Resume" is enabled. The field specifies the date for "RTC Alarm Resume".

Resume Time (hh:mm:ss)

This field can only be set if "RTC Alarm Resume" is enabled. The field specifies the time for "RTC Alarm Resume".

PnP/PCI Configurations


Phoenix - AwardBIOS CMOS Setup Utility
PnP/PCI Configurations
Init Display First [PCIEx]
PNP OS Installed [No]
Reset Configuration Data [Disabled]
Resources Controlled By [Auto(ESCD)]
IRQ Resources Press Enter
PCI/VGA Palette Snoop [Disabled]
Assign IRQ For VGA [Enabled]
Assign IRQ For USB [Enabled]
** PCI Express relative items **
Maximum Payload Size [4096]
Item Help
Menu Level ▶
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F7: Optimized Defaults

Note:
This section covers some very technical items and it is strongly recommended to leave the default settings as is unless you are an experienced user.

Init Display First

Settings: [PCI Slot, Onboard, PCIEx]

PNP OS Installed

Settings	Description
No	BIOS will initialize all the PnP cards
Yes	BIOS will only initialize the PnP cards used for booting (VGA, IDE, SCSI). The rest of the cards will be initialized by the PnP operating system

Reset Configuration Data

Settings	Description
Disabled	Default setting
Enabled	Resets the ESCD (Extended System Configuration Data) after exiting BIOS Setup if a newly installed PCI card or the system configuration prevents the operating system from loading

Resources Controlled By

Enables the BIOS to automatically configure all the Plug-and-Play compatible devices.

Settings	Description
Auto(ESCD)	BIOS will automatically assign IRQ, DMA and memory base address fields
Manual	Unlocks "IRQ Resources" for manual configuration

PCI/VGA Palette Snoop

Settings: [Disabled, Enabled]

Assign IRQ for VGA

Assign IRQ for VGA devices.

Settings: [Disabled, Enabled]

Assign IRQ for USB

Assign IRQ for USB devices.

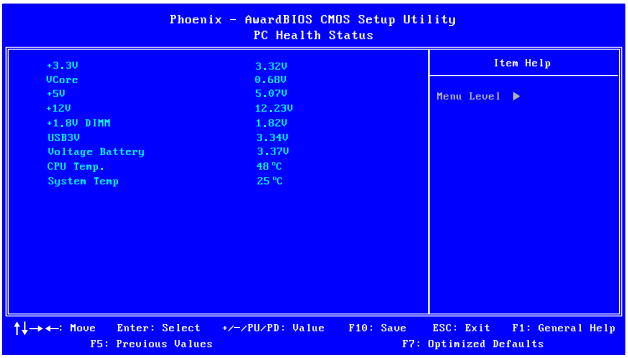
Settings: [Disabled, Enabled]

Maximum Payload Size

This options sets the maximum TLP payload size in bytes for PCI Express devices.

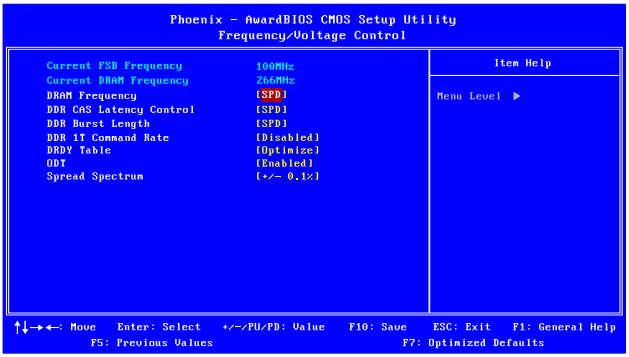
Settings: [128, 256, 512, 1024, 2048, 4096]

PC HEALTH STATUS



The PC Health Status displays the current status of all of the monitored hardware devices/components such as CPU voltages, temperatures and fan speeds.

FREQUENCY/VOLTAGE CONTROL


Phoenix - AwardBIOS CMOS Setup Utility
Frequency/Voltage Control
Current FSB Frequency 100MHz
Current DRAM Frequency 266MHz
DRAM Frequency [SPD]
DDR CAS Latency Control [SPD]
DDR Burst Length [SPD]
DDR 1T Command Rate [Disabled]
DRDY Table [Optimize]
ODT [Enabled]
Spread Spectrum [+/- 0.1%]
Item Help
Menu Level ▶
↑↓→←: Move Enter: Select +/-/PU/PD: Value F10: Save ESC: Exit F1: General Help
F5: Previous Values F7: Optimized Defaults

DRAM Frequency

Settings: [DDR2-400, DDR2-533, DDR2-667, SPD]

DDR CAS Latency Control

Settings: [2T, 3T, 4T, 5T, 6T, SPD]

DDR Burst Length

Settings: [4, 8, SPD]

DDR 1T Command Rate

Settings: [Disabled, Enabled]

DRDY Table

Settings: [Slowest, Optimize]

ODT

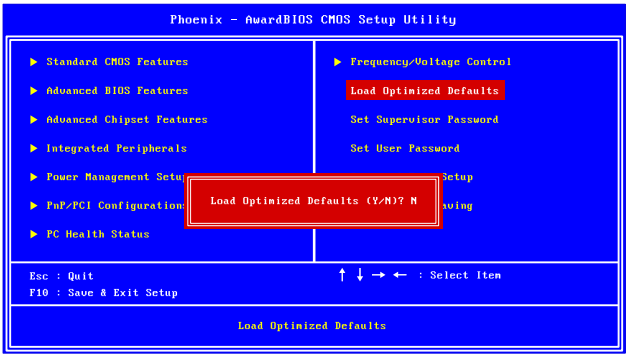
Settings: [Disabled, Enabled]

Spread Spectrum

When the mainboard's clock generator pulses, the extreme values (spikes) of the pulses create EMI (Electromagnetic Interference). The Spread Spectrum function reduces the EMI generated by modulating the pulses so that the spikes of the pulses are reduced to flatter curves.

Settings: [Disabled, +/- 0.1%, +/- 0.2%, +/- 0.3%, +/- 0.4%, +/- 0.5%, +/- 0.6%, +/- 0.7%, +/- 0.8%, +/- 0.9%]

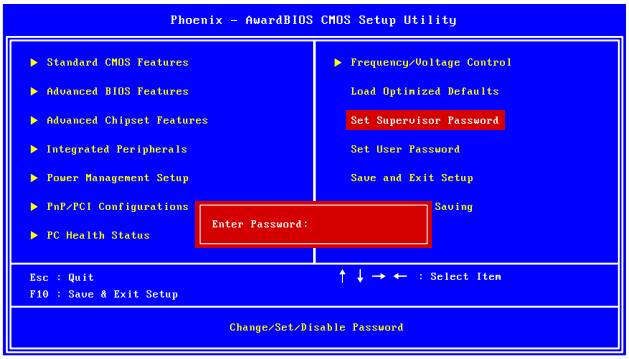
LOAD OPTIMIZED DEFAULTS



This option is for restoring all the default optimized BIOS settings. The default optimized values are set by the mainboard manufacturer to provide a stable system with optimized performance.

Entering "Y" and press <Enter> to load the default optimized BIOS values. Entering "N" will cancel the load optimized defaults request.

SET SUPERVISOR/USER PASSWORD



This option is for setting a password for entering BIOS Setup. When a password has been set, a password prompt will be displayed whenever BIOS Setup is run. This prevents an unauthorized person from changing any part of your system configuration.

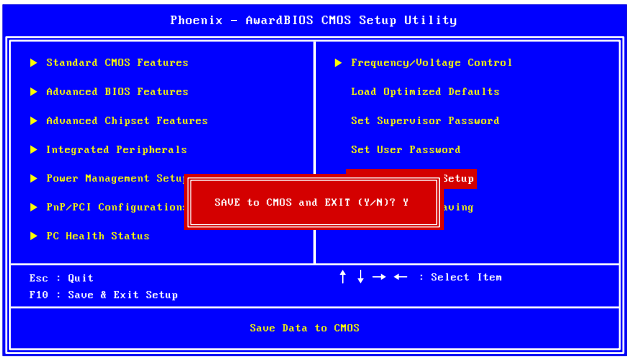
There are two types of passwords you can set. A supervisor password and a user password. When a supervisor password is used, the BIOS Setup program can be accessed and the BIOS settings can be changed. When a user password is used, the BIOS Setup program can be accessed but the BIOS settings cannot be changed.

To set the password, type the password (up to eight characters in length) and press <Enter>. The password typed now will clear any previously set password from CMOS memory. The new password will need to be reentered to be confirmed. To cancel the process press <Esc>.

To disable the password, press <Enter> when prompted to enter a new password. A message will show up to confirm disabling the password. To cancel the process press <Esc>.

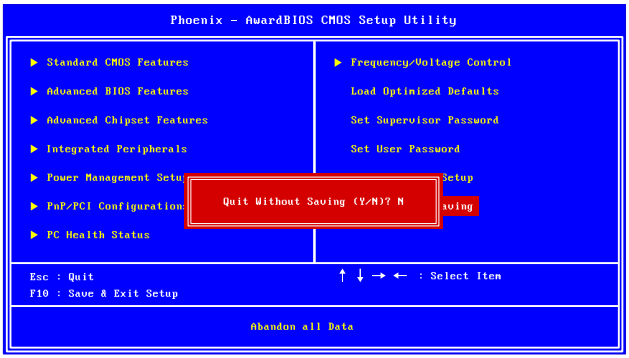
Additionally, when a password is enabled, the BIOS can be set to request the password each time the system is booted. This would prevent unauthorized use of the system. See "Security Option" in the "Advanced BIOS Features" section for more details.

SAVE & EXIT SETUP



Entering "Y" saves any changes made, and exits the program. Entering "N" will cancel the exit request.

EXIT WITHOUT SAVING



Entering "Y" discards any changes made, and exits the program. Entering "N" will cancel the exit request.

5

Driver Installation

This chapter gives you brief descriptions of each mainboard driver and application. You must install the VIA chipset drivers first before installing other drivers such as VGA drivers. The applications will only function correctly if the necessary drivers are already installed.

DRIVER UTILITIES

Getting Started

The EITX-3000 includes a driver CD that contains the drivers and software for enhancing the performance of the system. The drivers can also be downloaded from http://www.via.com.tw.

Note:
The driver utilities and software are updated from time to time. The latest updated versions are available at http://www.via.com.tw

Running the Driver Utilities CD

To start using the CD, insert the CD into the CD-ROM or DVD-ROM drive. The CD should run automatically after closing the CD-ROM or DVD-ROM drive. The driver utilities and software menu screen should then appear on the screen. If the CD does not run automatically, click on the "Start" button and select "Run..." Then type: "D:\Setup.exe".

For Linux drivers, click the right button on mouse and click open. Linux drivers are located in the "Driver" folder.

Note:
D: might not be the drive letter of the CD-ROM/DVD-ROM in your system.

CD CONTENT

- ☐ VIA Hyperion Pro Driver
  - Compatible with all current VIA chipsets
  - Includes support for INF, AGP, V-RAID, and IDE
- ☐ VIA Graphics Driver
  - Enhances the onboard VIA graphic chip.
  - Windows XP and Linux drivers are provided.
- ☐ VIA Audio Driver
  - Enables access to the onboard VIA HD audio codec.
- ☐ VIA USB 2.0 Driver
  - Enhances VIA USB 2.0 ports.
- ☐ VIA LAN Driver
  - Enhances the onboard VIA VT6130 PCIe Gigabit Ethernet Chipsets.

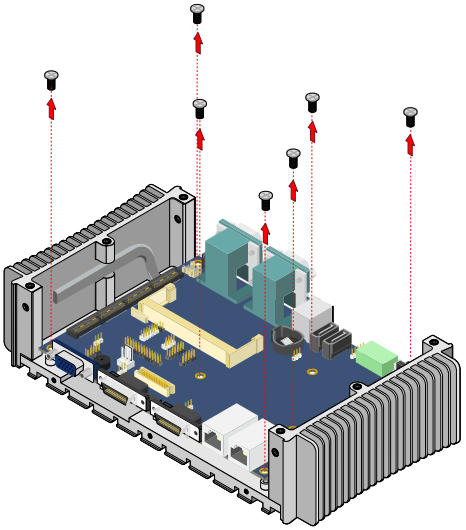
A

Disassembling the EITX-3000 Board from Heatsink

DISASSEMBLING

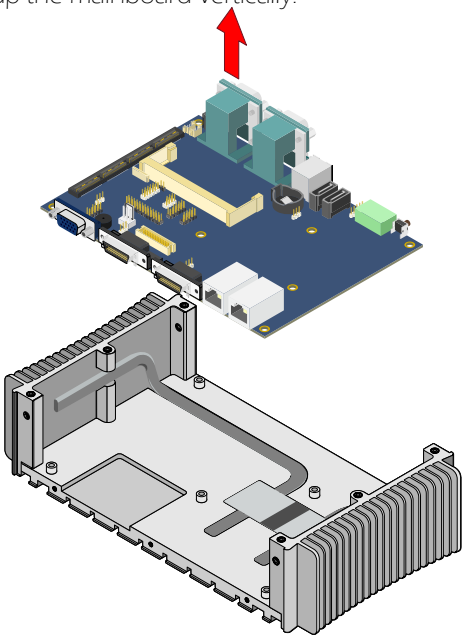
Step 1

Unscrew the seven screws on the EITX-3000 mainboard.



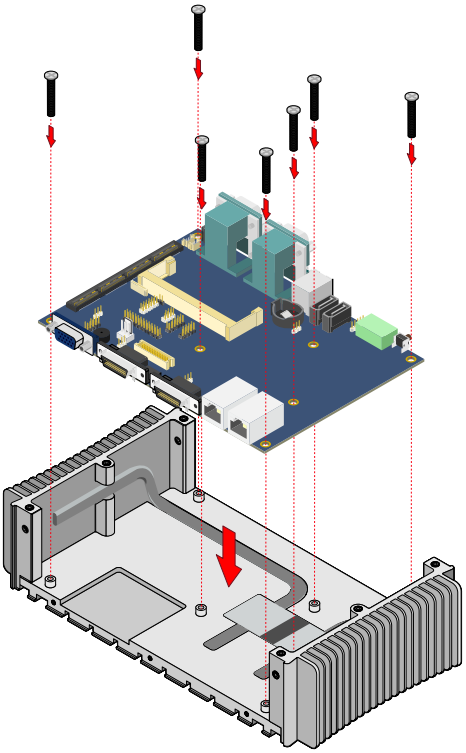
Step 2

Gently pull-up the mainboard vertically.



Step 3

When installing the EITX-3000 into the casing, change the screws with the longer screws in order to secure it with the casing.



Note:
Make sure first to put the thermal heat paste/glue of processor and chipset before inserting the mainboard onto the heatsink.

B

EM-IO : Embedded IO Expansion Bus Interface

INTRODUCTION

The Flexible Embedded Board with Em-IO Expansion

For embedded system developers, flexibility in I/O configurations is necessary in order to meet diverse embedded applications. It is important for developers to reduce development costs, risks, and time. The EITX-3000 is an Em-ITX form factor single board computer that enables developers to design a system with solid performance and comprehensive I/O's using its onboard Em-IO expansion bus. The Em-IO expansion bus makes the system design more flexible to easily extend functionality. In case a new or different I/O is needed for a new application to meet time to market, the standard platform based on Em-ITX form factor can be stacked with an alternative Em-IO expansion module. This can greatly reduce development costs and accelerate the product design cycle.

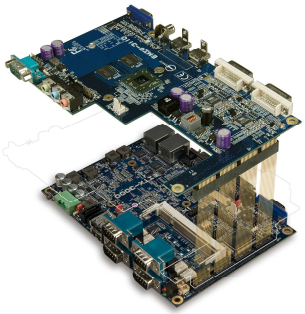
Modularized Expansion of Em-IO Interface

The Em-IO interface connector is an open bus interface initiated by VIA at the end of 2008. The Em-IO integrates popular bus signals, including USB2.0, GPIO, LPC, PCI Express, VIA Digital Video Port interface Signals, ACPI 3.0 and 3.3V/5V/12V DC Power Signals. The Em-IO interface connector enables Em-IO expansion modules to be attached to Em-ITX form factor board to further reduces troublesome cabling issues that are usually encountered when designing systems.

Stacking the Em-IO Module to Em-ITX Mainboard

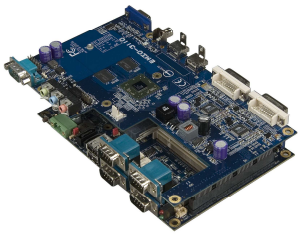
Step 1

Align the Em-IO connector of the expansion module with the Em-IO connector of the mainboard.



Step 2

Insert the connector then press the board firmly.



EM-IO CONNECTOR PIN DEFINITION

Em-IO connector Pin definition

The Em-IO expansion bus interface uses the Samtec Q STRIP QSE Series 160-pin socket (Samtec part number of QSE-080-001-F-D-A).

Pin	Pin Name		Pin Name	Pin
A1	USB_OC#4	GND	SMB_CLK	B1
A2	USB_4N		SMB_DAT	B2
A3	USB_4P		SMB_ALRT#	B3
A4	GND		Global Reset	B4
A5	LPC_CLK48M		PWROK_5V	B5
A6	GPIO		GPIO	B6
A7	GPIO		LPC_FRAME#	B7
A8	LPC_CLK14M		LPC_AD0	B8
A9	LPC_DRQ#1		LPC_AD1	B9
A10	LPC_CLK		LPC_AD2	B10
A11	Serial IRQ		LPC_AD3	B11
A12	GND		GND	B12
A13	C_PCIE_RX7-		C_PCIE_RX8-	B13
A14	C_PCIE_RX7+		C_PCIE_RX8+	B14
A15	GND		GND	B15
A16	C_PCIE_TX7-		C_PCIE_TX8-	B16
A17	C_PCIE_TX7-		C_PCIE_TX8-	B17
A18	GND		GND	B18
A19	C_PCIE_RX5-		C_PCIE_RX6-	B19
A20	C_PCIE_RX5+		C_PCIE_RX6+	B20
A21	GND		GND	B21
A22	C_PCIE_TX5-		C_PCIE_TX6-	B22
A23	C_PCIE_TX5+		C_PCIE_TX6+	B23
A24	GND		GND	B24
A25	C_PCIE_RX3-		C_PCIE_RX4-	B25
A26	C_PCIE_RX3+		C_PCIE_RX4+	B26
A27	GND		GND	B27
A28	C_PCIE_TX3-		C_PCIE_TX4-	B28
A29	C_PCIE_TX3+		C_PCIE_TX4+	B29
A30	GND		GND	B30
A31	C_PCIE_RX1-		C_PCIE_RX2-	B31
A32	C_PCIE_RX1+		C_PCIE_RX2+	B32
A33	GND		GND	B33
A34	C_PCIE_TX1-		C_PCIE_TX2-	B34
A35	C_PCIE_TX1-		C_PCIE_TX2+	B35
A36	GND		GND	B36
A37	C_PCIE_CLK+		B_PCIE_RX2-	B37
A38	C_PCIE_CLK-		B_PCIE_RX2+	B38
A39	GND		GND	B39
A40	A_PCIE_RX1-		B_PCIE_TX2-	B40
A41	A_PCIE_RX1+		B_PCIE_TX2+	B41

A42	GND	GND	GND	B42
A43	A_PCIE_TX1-		B_PCIE_CLK2-	B43
A44	A_PCIE_TX+		B_PCIE_CLK2+	B44
A45	GND		GND	B45
A46	A_PCIE_CLK1-		EXPCD_REQ#	B46
A47	A_PCIE_CLK1+		EXPCD_PRSNT#	B47
A48	GND		Ring	B48
A49	PCIE_RST		ACPI_S3	B49
A50	PCIE_WAKE#		ACPI_S5	B50
A51	GND		GND	B51
A52	DVP_D0		DVP_D1	B52
A53	DVP_P2		DVP_D3	B53
A54	DVP_D4		DVP_D5	B54
A55	GND		GND	B55
A56	DVP_D6		DVP_D7	B56
A57	DVP_D8		DVP_D9	B57
A58	DVP_D10		DVP_D11	B58
A59	GND		GND	B59
A60	DVP_D12		DVP_D13	B60
A61	DVP_D14		DVP_D15	B61
A62	DVP_DE		DVP_TVCLKR	B62
A63	GND		GND	B63
A64	DVP_VS		DVP_CLK	B64
A65	DVP_HS		GND	B65
A66	DVP_TVFLD		EN_VDD2	B66
A67	GND		EN_VBLT2	B67
A68	DVP_SPD		DVP_DET	B68
A69	DVP_SPCLK		SPDIFOUT	B69
A70	GND		GND	B70
A71	VCC		VCC33	B71
A72	VCC		VCC33	B72
A73	VCC		VCC33	B73
A74	VCC		VCC33	B74
A75	VCC		VCC33	B75
A76	VCC		VCC33	B76
A77	VCC		VCC33	B77
A78	VCC12		VCC33SB	B78
A79	VCC12		VCC5SB	B79
A80	VCC12		VCC5SB	B80

SELECTION OF EM-IO EXPANSION MODULES

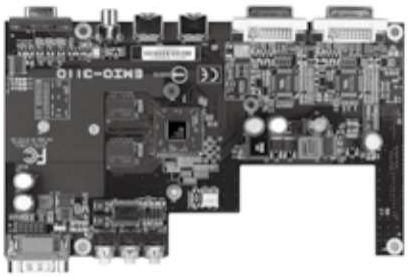
Faster Time to Market Cycles

VIA has also designed a selection of expansion modules covering a variety of industrial applications including multimedia display, automation control, kiosk, POI and POS applications. The expansion modules bring all the advantages of off-the-shelf features without the necessary development time. VIA also provides unrivalled software support including customized firmware implementations.

EMIO-3110

Multi Display Em-IO Card with 2 HDMI, 2 DVI, VGA, TV-Out, Audio

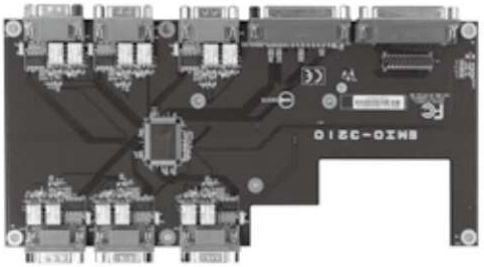
The EMIO-3110 is designed with the S3 Graphics 4300E embedded GPU plus a 256MB GDDR3 SDRAM display memory, to deliver the best-in-class performance, unrivalled efficiency, and powerful graphics ability. It supports the latest Microsoft® DirectX™ 10.1 and OpenGL 2.1 graphics architectures for smooth, realistic 3D gaming, jaw dropping Hi-Definition video playback and the latest display connectivity including two HDMI, two DVI, and one CRT/VGA. It also provides Line-in, Line-out, and Mic-in audio options. The dimension of EMIO-3110 is 20.4 cm (W) x 12 cm (L).



EMIO-3210

Em-IO Card with 6 COM Ports and 2 Parallel Ports

The EMIO-3210 supports six serial ports (6 RS-232/422/485 ports, configurable in BIOS setup) and two IEEE 1284 parallel ports. The dimension of EMIO-3210 is 26.8 cm (W) x 12 cm (L).



EMIO-3430

Em-IO Card with 1 PC Card Slot, GPS, Bluetooth, 802.11 b/g Wireless LAN

The EMIO-3430 supports one PC Card slot for PCMCIA or CardBus card. It also provides reserved interface sockets for a 20-channel GPS receiver, IEEE 802.11 b/g WLAN module, and Bluetooth 2.0 module options. The dimension of EMIO-3430 is 17 cm (W) x 12 cm (L).